

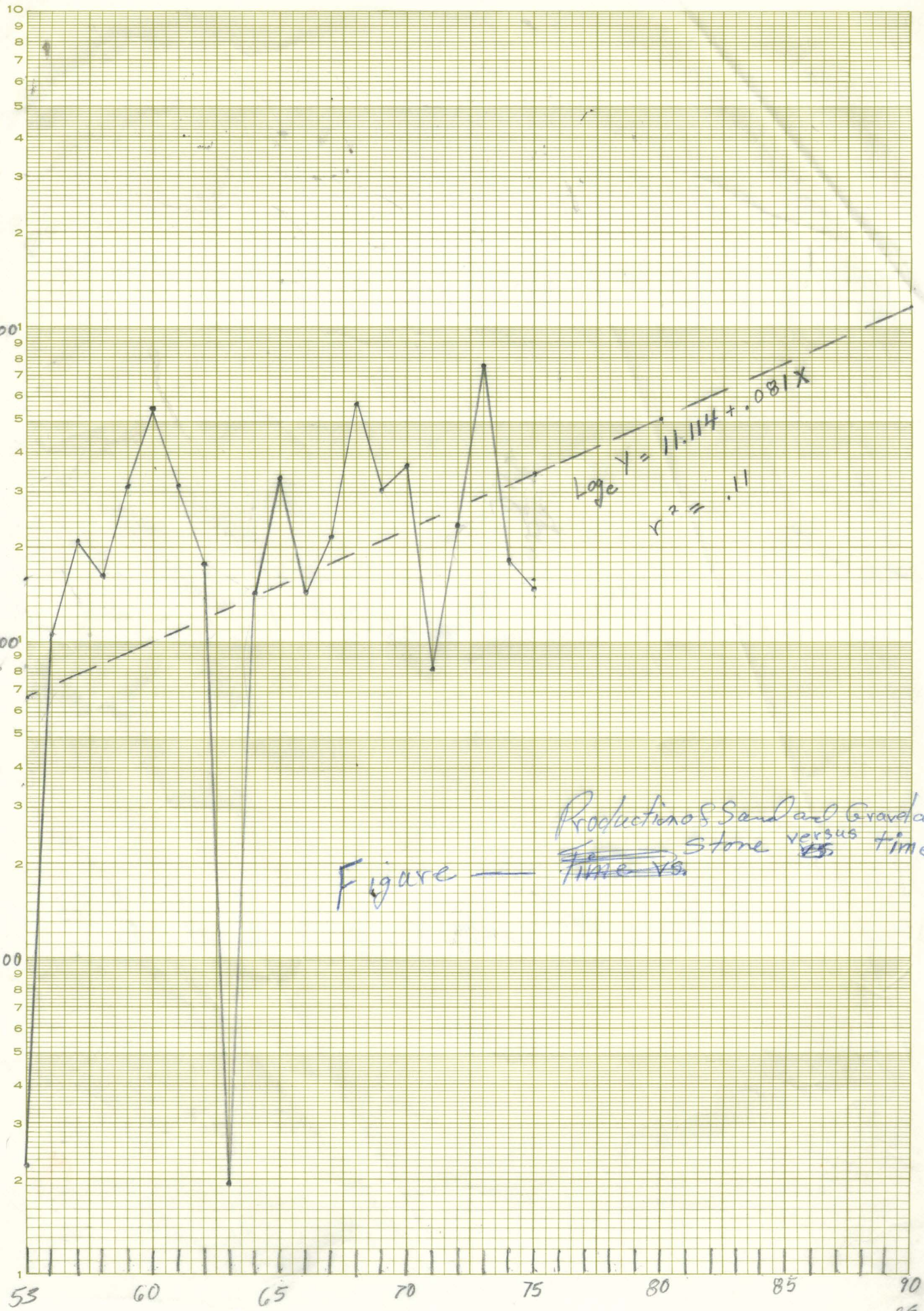
EUGENE DIETZEN CO.  
MADE IN U. S. A.

NO. 340-L410 DIETZEN GRAPH PAPER  
SEMI-LOGARITHMIC  
4 CYCLES X 10 DIVISIONS PER INCH

1,000,000

100,000

10,000



$$\log_e Y = 11.114 + .081X$$
$$r^2 = .11$$

Figure — Production of Sand and Gravel and Stone versus time

# Curry County

$$\log_e Y = a_0 + a_1 X$$

$$R^2 = 0.11$$

X = time

Y = production

uncoded

X	ln Y				Coded	uncoded
-10	0	7.79194			.10998	.10998
-9	1	11.52247	R <sub>0</sub>	a <sub>0</sub>	11.9240	11.11401
-8	2	12.25357	R <sub>1</sub>	a <sub>1</sub>	.08100	.08100
-7	3	11.99178	R <sub>2</sub>	ΣY <sup>2</sup>	3031.75	3031.75
-6	4	12.64785	R <sub>3</sub>	n	21	21
-5	5	13.21328	R <sub>4</sub>	ΣY	250.40	250.40
-4	6	12.65409	R <sub>5</sub>	ΣXY	62.36942	2566.4092
-3	7	12.04849	R <sub>6</sub>	ΣX <sup>2</sup>	2870	2870
-2	8	7.58223	R <sub>7</sub>	ΣX	.0000	210
-1	9	11.85223				
0	10	12.71249				
1	11	11.87451				
2	12	12.33070				
3	13	13.24339				
4	14	12.64325				
5	15	12.80244				
6	16	11.32023				
7	17	12.36795				
8	18	13.53124				
9	19	12.10314				
10	20	11.91676				

0 - 7.79194 of left out  
8 - 7.58223

0 + 8 left out  
data re number  
0 - 18

R <sub>0</sub>	a <sub>0</sub>	12.25675	12.26334
R <sub>1</sub>	a <sub>1</sub>	.01065	.0118
R <sub>2</sub>	ΣY <sup>2</sup>	2913.54901	2913.549
R <sub>3</sub>	n	19	19
R <sub>4</sub>	ΣY	235.02986	235.02
R <sub>5</sub>	ΣXY	2505.75188	2122.02
R <sub>6</sub>	ΣX <sup>2</sup>	2806.0	2109.00
R <sub>7</sub>	ΣX	202.00	171

$$\ln y = a_0 + a_1 X$$

$\ln y = 11.9240 + .08100X$   
to change 0 point back to -10

$$\ln y = 11.9240 + .08100 \cdot (-10)$$

$\ln y = 11.11400$  new 0 point at -10 = to the uncoded figures

$y = 67,104$  tons

$$\log_e Y = 11.114 + .08100X$$

$$Y = a_0 + a_1 X$$

Y = mineral production  
X = time

X	Y	$\frac{1}{X}$
1955 0 1	2421	1.79194
56 1 2	100959	11.52247
57 2 3	209729	12.25357
58 3 4	161423	11.99178
59 4 5	311094	12.64785
60 5 6	547095	12.65409
61 6 7	313042	12.04849
62 7 8	170841	7.58223
63 8 9	1963	11.85223
64 9 10	140397	12.71249
65 10 11	331868	11.87451
66 11 12	143560	12.33070
67 12 13	226546	13.24339
68 13 14	564326	12.64325
69 14 15	309665	12.80244
70 15 16	363104	11.32023
71 16 17	82473	12.36795
72 17 18	235144	13.53124
73 18 19	752566	12.10314
74 19 20	180438	11.91676
75 20 21	149756	

$$Y = a_0 + a_1 X$$

$r^2$	$\sqrt{.08} = .28$
$R_0 = a_0 =$	169,513.04
$R_1 = a_1 =$	8279.22
$R_2 \sum Y^2 =$	2,034,936.3
$R_3 n =$	21.84
$R_4 \sum Y =$	5298,410.00
$R_5 \sum XY =$	59,359,099.00
$R_6 \sum X^2 =$	2870.00
$R_7 \sum X =$	210.00

Without 63-8-1963  
but just going onto 64-9

$r^2$	$\sqrt{.07} = .26$
$R_0 a_0 =$	187,677.73
$R_1 a_1 =$	7638.13
$R_2 \sum Y^2 =$	2,034,932.4
$R_3 n =$	20
$R_4 \sum Y =$	52,964,47.00
$R_5 \sum XY =$	59,343,395.00
$R_6 \sum X^2 =$	2806.00
$R_7 \sum X =$	202.00

Without 63-8-1963  
but 8 was used for 1964

$r^2$	$\sqrt{.07} = .26$
$R_0 - a_0 =$	185,575.13
$R_1 - a_1 =$	8341.91
$R_2 \sum Y^2 =$	2,034,932.4 x 10 <sup>4</sup>
$R_3 n =$	20
$R_4 \sum Y =$	52,964,47.00
$R_5 \sum XY =$	55,863,552.00
$R_6 \sum X^2 =$	2470.00
$R_7 \sum X =$	190.00

26 20  
27 23  
28 24  
29 25  
80 26

# Curry County

$$y = a + b \ln x$$

y = time

x = production

~~Void~~

X	Y
2421	0
100959	1
209729	2
161423	3
311094	4
547095	5
313042	6
170841	7
1963	8
140397	9
331868	10
143566	11
226546	12
564326	13
309665	14
363104	15
83473	16
235144	17
752566	18
180438	19
149756	20

$r^2$	=	.11029
$R_0$	$a_0$	-6.21650
$R_1$	$a_1$	1.35993
$R_2$	$\Sigma Y^2$	2870
$R_3$	$n$	21
$R_4$	$\Sigma Y$	210
$R_5$	$\Sigma XY$	2566.59825
$R_6$	$\Sigma X^2$	3032.00308
$R_7$	$\Sigma X$	250.41519

$r^2$		2.4884957 - 12
$R_0$	$a_0$	11.11354
$R_1$	$a_1$	.08110
$R_2$	$\Sigma (\ln Y)^2$	2.0351022 12
$R_3$	$n$	21
$R_4$	$\Sigma \ln Y$	250.41519
$R_5$	$\Sigma X \ln Y$	2566.59825
$R_6$	$\Sigma X^2$	2870
$R_7$	$\Sigma X$	210

.52898	-	.82527
10.43572	1	843371
.000041	1	.01205
3032		3032
21		21
250.41519		210
67309.7160		2660
2.0351022		2470
5299410.00		190

$r^2$		2.4884957 - 12
$R_0$	$a_0$	11.11354
$R_1$	$a_1$	.08110
$R_2$	$\Sigma (\ln Y)^2$	2.0351022 12
$R_3$	$n$	21
$R_4$	$\Sigma \ln Y$	250.41519
$R_5$	$\Sigma X \ln Y$	2566.59825
$R_6$	$\Sigma X^2$	2870
$R_7$	$\Sigma X$	210

I can not get from  $y = a + b \ln x$  to  $\ln y = a + bx$  without changing  $y$  to  $\ln y$  before inputting.