

Nov. 10, 1942

T = 458° (4.1 MV)

				% calc	calc obs	
4 ³²	7.00	195	$M_{70} = \frac{271}{0.3106} \times 9.8 = 873 \times 9.8 = 8550$	$\frac{M_{70}}{M_{70}^0} = \frac{24\frac{1}{2}}{8550} = 0.286$	0.605	0.44
5 ⁰¹	7.02	210	$\frac{245}{0.3106} \times 9.8 = 199 \times 9.8 = 1970$	$\frac{22}{1970} = 0.285$		0.44
6 ⁰²	7.12	282				
6 ⁴²	7.14	279	$M_{70} = \frac{280}{0.3106} \times 9.8 = 902 \times 9.8 = 8830$	$\frac{M_{70}}{M_{70}^0} = \frac{97}{8830} = 1.08$	1.72	0.63
8 ⁰²	7.12	268				
8 ¹¹	7.12	263 $\frac{1}{2}$	$M_{70} = \frac{233}{0.310} = 1451$	$\frac{M_{612}}{M_{70}} = \frac{60}{1451} = 1.99$	9.32	0.856
9 ¹⁰	7.08	237				
9 ³⁰	7.08	245				
11 ⁰¹	7.01	232				
12 ³⁰	6.93	215				

T

7.11 MV = 158
 22
 273
 453
 5
 458

$M_{26} : G = 1.8 \quad \Delta_0 = 3 \Delta_2 = 51.3 \quad \frac{\sigma}{\Delta_0} = 0.0351 \times 2\frac{1}{2} = 0.0939$

$\frac{M_{26}}{M_{70}} = 0.251 \times 2.66 (1 - 0.0939) = 0.668$
 $\frac{0.668}{0.605} = 1.10$

$M_{43\frac{1}{2}} : G = 1.4 \quad \Delta_0 = 2 \Delta_2 = 34.2 \quad \frac{\sigma}{\Delta_0} = \frac{1.4}{34.2} = 0.0410 \times 2\frac{1}{2} = 0.1025$

$\frac{M_{43\frac{1}{2}}}{M_{70}} = 0.251 \times 7.64 (1 - 0.1025) = 1.918 = 1.729$
 $\frac{1.918}{1.121} = 1.71$

$\Delta_2 = \frac{17.4 \times 450}{458} = 17.1$

$\frac{b}{\Delta_2} = \frac{2.15}{17.1} = 0.1255$

$\frac{M_{max}}{M_{70}} = 0.3106$

$M_{617} : G = 0.3 \quad \Delta_0 = \Delta_2 = 17.1 \quad \frac{\sigma}{\Delta_0} = \frac{0.3}{17.1} = 0.00175 \times 2 = 0.0035$

$\frac{M_{617}}{M_{70}} = 0.2505 \times 37.37 (1 - 0.0035) = 9.35 = 9.32\%$
 $\frac{9.35}{1.14} = 8.2$

$\frac{\Delta_2}{\Delta_2} = 0.363 \quad \Delta_2 = 6.20$

16.2
 82.4
 - 3.3
 179.1

+ 1 Δ_2 - 17.1

62.0

+ 2 Δ_2 - 17.1

44.9

+ 3 Δ_2 - 17.1

27.8

Oct. 2, 1942

				% calc	abs calc
4 ⁵²	6.10 MV	$M_o = \frac{112}{0.303} \times 9.8 = 371 \times 9.8 = 3636$	$\frac{M_{28}}{M_o} = \frac{19}{3636} = 0.524$	0.688	0.805
5 ³³	6.16 "	100 $\frac{1}{2}$			
6 ¹²	6.18 "	$M_o = \frac{107}{0.303} \times 3.48 = 355 \times 3.48 = 1231$	$\frac{M_{62}}{M_o} = \frac{100}{1231} = 8.10$	9.11	0.89
6 ⁴⁹	6.20 "	107			
8 ⁴⁵	6.21 "	113	$M_o = \frac{104}{0.303} \times 9.8 = 3500$	$\frac{M_{43}}{M_o} = \frac{47}{3500} = 1.34$	1.68 0.798
11 ²¹	6.21 "	112			

T

6.21 MV = 140°
 27°
 273°
 440°
 5°
 445°

$\Delta a = 14.4 \frac{450}{445} = 14.6$

$\frac{b}{\Delta a} = \frac{2.15}{14.6} = 0.1220$

$\frac{M_{mat}}{M_o} = 0.303$

$\frac{\Delta t}{\Delta a} = 0.3584 \quad \Delta t = 6.31$

edge (magv) 82.9
 - 3.3
 49.6
 + 14.6
 62.0
 + 24.6
 44.4
 + 34.6
 26.9

$M_{28}: \sigma = -1.2 \quad \Delta a = 3 \Delta a_o = 52.8 \quad \frac{\sigma}{\Delta a} = 0.0221 \times 2\frac{1}{2} = 0.0604$

$\frac{M_{28}}{M_o} = 0.244 \times 2.66 \times (1 + 0.0604) = 0.649 = 0.688\%$
 0.665
 16
 0.039
 0.688

$\frac{M_{62}}{M_o} = 0.244 \times 37.34 = 9.11\%$
 9.335
 - 0.224

$M_{43}: \sigma = 1.4 \quad \Delta a = 2 \Delta a_o = 35.2 \quad \frac{\sigma}{\Delta a} = 0.0398 \times 2\frac{1}{2} = 0.0995$

$\frac{M_{43}}{M_o} = 0.244 \times 4.64 (1 - 0.10) = 1.064 = 1.68\%$
 1.910
 46
 1.864
 - 0.186
 1.68

Oct. 6, 1942

$T = 471$ (7.6 M μ)

					calc	obs calc
4 ⁵⁴	7.59 M μ	4				
5 ⁰⁸	7.60	326½	$f_0 = \frac{319}{0.319} \cdot 9.8 = 9800$	$f_{28} = 29$	$\frac{f_{28}}{f_0} = 0.30\%$	0.604% 0.49
5 ⁴⁵	7.60	314				
6 ⁴⁸	7.76			$f_{48} = 124$	$\frac{f_{48}}{f_0} = 1.27\%$	2.15% 0.59
8 ⁰⁹	7.65	288½				
8 ¹⁹	7.62		$f_0 = \frac{300}{0.319} = 940$	$f_{63} = 72½$	$\frac{f_{63}}{f_0} = 7.70\%$	9.19% 0.85
8 ⁴⁵	7.55					
9 ¹⁷	7.44	236½	$\lambda_0 = 3\lambda_a$	$e^{-\frac{1}{3}} \left(\frac{1}{3}\right)^3 \left\{ \right\} = 0.4165 \cdot 27 (1+0.003) = 0.02657 = 0.0266\%$		

T

7.62 M μ	168°					
	25°					
	273°					
	466					
	+ 5					
	471					
			$\lambda_0 = 2\lambda_a$	$e^{-\frac{1}{2}} \left(\frac{1}{2}\right)^3 \left\{ \right\} = 0.6065 \cdot 8 (1+0.008) = 0.07582$		4.64%

$\lambda_a = 17.4 \frac{450}{471} = 16.6 \frac{mm}{100}$		$\lambda_0 = \lambda_a$	$e^{-1} 1^3 \left\{ \right\} = 0.36788 (1+0.015)$		37.34%
$\frac{b}{\lambda_a} = \frac{2.15}{16.6} = 0.1293$					

$f_{max} = 0.319$		$\frac{f}{f_0} = 2 \frac{b}{\lambda_a} e^{-\frac{\lambda_a}{\lambda_0}} \left(\frac{\lambda_a}{\lambda_0}\right)^3 \left\{ \right\} \left[1 + \left(3 - \frac{\lambda_a}{\lambda_0}\right) \frac{b}{\lambda_0} \right]$	
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$\frac{\lambda_{\frac{1}{2}}}{\lambda_a} = 0.364$	$\lambda_{\frac{1}{2}} = 6.10$		
	44.2		
	83.3		
	- 3.3		
	80.0		
	+ $\lambda_a - 16.6$		
	63.4		
	+ $2\lambda_a - 16.6$		
	46.8		
	+ $3\lambda_a - 16.6$		
	30.2		
		$f_{28} \quad b = 2.2 \quad \lambda_0 = 3\lambda_a = 49.8 \quad \epsilon = \frac{b}{\lambda_0} = \frac{2.2}{49.8} = 0.044 \times 2\frac{2}{3} = 0.118$	
		$\frac{f_{28}}{f_0} = 0.2586 \times 2.66 (1-0.118) = 0.688 = 0.607\%$	
			0.607
		$f_{48} \quad b = -1.2 \quad \lambda_0 = 2\lambda_a = 33.2 \quad \epsilon = \frac{1.2}{33.2} = 0.0362 \times 2\frac{1}{2} = 0.0905$	
		$\frac{f_{48}}{f_0} = 0.2586 \times 7.64 (1+0.0905) = 1.973 = 2.15\%$	
			0.117 2.150

		$f_{c.9} \quad b = -0.4 \quad \lambda_0 = \lambda_a = 16.6 \quad \epsilon = \frac{0.4}{16.6} = 0.0241 \times 2 = 0.0482$	
		$\frac{f_{c.9}}{f_0} = 0.2586 \times 91.94 (1-0.0482) = 9.65$	9.19%
			9.19

$$\frac{dn}{n_0} = e^{-\frac{c^2}{\alpha^2}} \frac{c^2}{\alpha^2} \frac{dc^2}{\alpha^2} = e^{-x} x dx \quad \int_0^{\infty} e^{-x} x dx = \int_0^{\infty} x de^{-x} = xe^{-x} \Big|_0^{\infty} - \int_0^{\infty} e^{-x} dx = \int_0^{\infty} de^{-x} = e^{-x} \Big|_0^{\infty} = -1$$

$$e^{-x} (1 - ae^{-bx}) x dx = e^{-x} x dx - ae^{-(1+b)x} x dx \quad \frac{c^2}{\alpha^2} = \frac{bc}{s} = x$$

$$\int_0^{\infty} e^{-x} (1 - ae^{-bx}) x dx = 1 - \frac{a}{(1+b)^2} \int_0^{\infty} e^{-(1+b)x} (1+b)x d(1+b)x = 1 - \frac{a}{(1+b)^2} = 0.9$$

$$\frac{a}{(1+b)^2} = 0.1 \quad b=1 \quad \frac{a}{4} = 0.1 \quad a=0.4$$

$$f = a e^{-bx} = 0.4 e^{-x}, \quad x=1, \quad f = 0.4 \times 0.368 = 0.092 \quad 9.2\%$$

$$x=2 \quad f = 0.4 \times 0.135 = 0.054 \quad 5.4\%$$

$$x=0.5 \quad f = 0.4 \times 0.6065 = 0.242 \quad 24.2\%$$

$$x=0.3 \quad f = 0.4 \times 0.441 = 0.296 \quad 29.6\% \quad \frac{\Delta d}{s} = 0.3, \quad s = \frac{18}{0.3} = 60 \frac{\text{min}}{100}$$

$$x=3 \quad f = 0.4 \times 0.050 = 0.020 \quad 2.0\%$$

$$\frac{d(xe^{-x})}{dx} = e^{-x} - xe^{-x}, \quad x_m = 1 \quad e^{-y^2} y^3 dy \quad \frac{dy^3 e^{-y^2}}{dy} = 3y^2 e^{-y^2} - 2y^4 e^{-y^2} = 0, \quad y_m^2 = \frac{3}{2}$$

$$y_m = \sqrt{1.5} = 1.225$$

~~$$a=1 \quad b=0.5 \quad \frac{1}{(1+b)^2} = \frac{1}{1.5^2} = \frac{1}{2.25} = \frac{4}{9} = 0.44444$$~~

~~$$b=0.2 \quad \frac{1}{1.2^2} = \frac{1}{1.44} = \frac{25}{36} = \frac{1}{1.44} = 0.69444$$~~

~~$$b=0.1 \quad \frac{1}{1.1^2} = \frac{1}{1.21} = 0.826$$~~

~~$$b=0.05 \quad \frac{1}{1.05^2} = \frac{1}{1.1025} = 0.905$$~~

$$a=1 \quad \frac{1}{(1+b)^2} = 0.1 \quad b=2 \quad \frac{1}{3^2} = \frac{1}{9} = 0.11111$$

$$b=2 \quad x=1 \quad e^{-2} = 0.13534$$

$$x=0.5 \quad e^{-1} = 0.368$$

$$x=0.3 \quad e^{-0.6} = 0.549$$