

Σ 211803 12.2
5265

59 472

3089

13 28.2

- 39 08 68 $\sqrt{11}$

new

117440

14254

3.89 + 1.19 + 104 C

3.88 + 116 + 1.04 J

3.42 + 0.42 J

3.04

2.45

1.75

~~003~~ - 0245 ³⁵ new - 2.8 a

~~0059~~

- 0111 - 019

~~016 600~~

- 0009 - 0154

- 0107

- 0112 - 016

- 011 - 011

9975

- 7309 0154

- 0130

- 6081

- 013 - 014

0703

V 2485

6.24 years

δ M ~ 0.2

0.3

new

267 - 207.8 664

6.74 - 138.4 19.77

7.07 - 157.4 18.42

6.47 - 150.6 19.22

+ 14

- 20

7.01 - 153.0 19.11

7.10 - 154.4 18.82

7.05

7.00

4502

10014 ± 2.3

1018
1020
1022 ± 20

60
8149

722

10513

5935

42

204

10059

101

8108

2062

5348

5837

120

544

8169

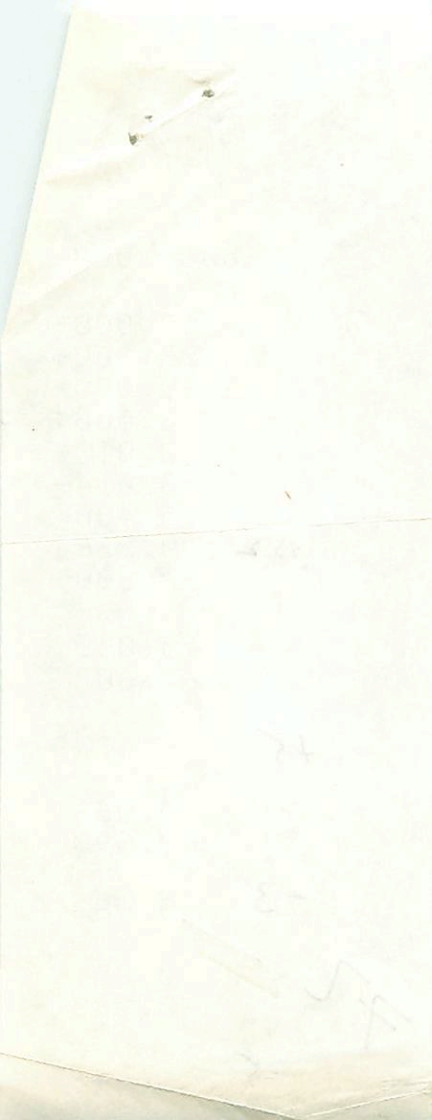
4049

5888

176

5904

27



5089.000*

13.000*

23.200*

-39.000*

-3.000*

-0.013*

-0.014*

5.400*

85.2 123.226

-2.000

3.040

-0.607

+5

6.477

-0.063

-0.693

-3

-5.682

-0.051

0.388

-5

-7.221

72

5 charm

291 -1013 ± 8.0 -119 ± 7.1 19.3 2.70
 -1190
 13 28.8 -1088 77 19 -1566.6 FS -41646 L₀
 6.51 ± 0.48 (1.59) 8000
 6.54 ± 0.45 1.60 1.24
 5 = 409
 5 = 10

18279 50.395 -77 18 35.77 1895.5
 8016 5.166
 55.565
 35803
 46.0
 25.122
 936
 26.761
 83.9
 81.91
 9.5
 23"
 6"

-1092 -144

~~6.1285~~

Bill
Ulan

2.9

37.15
 -2.55
 34.6
 1947.4
 35.10
 -146.2
 CR
 27.3
 27.3
 6.52 ± 0.46 ± 0.10

1

23

7

13.450
-77.300
-1788.000
-134.000
2.900
30
-35.000

-0.786
-0.270
-0.556
1635.552
81.659

0.601
-0.120
-0.790
-1043.347
-12.006

83
-0.147
0.955
-0.256
-333.815
-3.716

117710 13 29.1 +42 22 6.2 912 -20.28

18293

8014

GN

-0089¹² +029¹⁷ N30

-0085 ± 2.6 +022 ± 1.9 C-C → N30

+019 ± 1.9

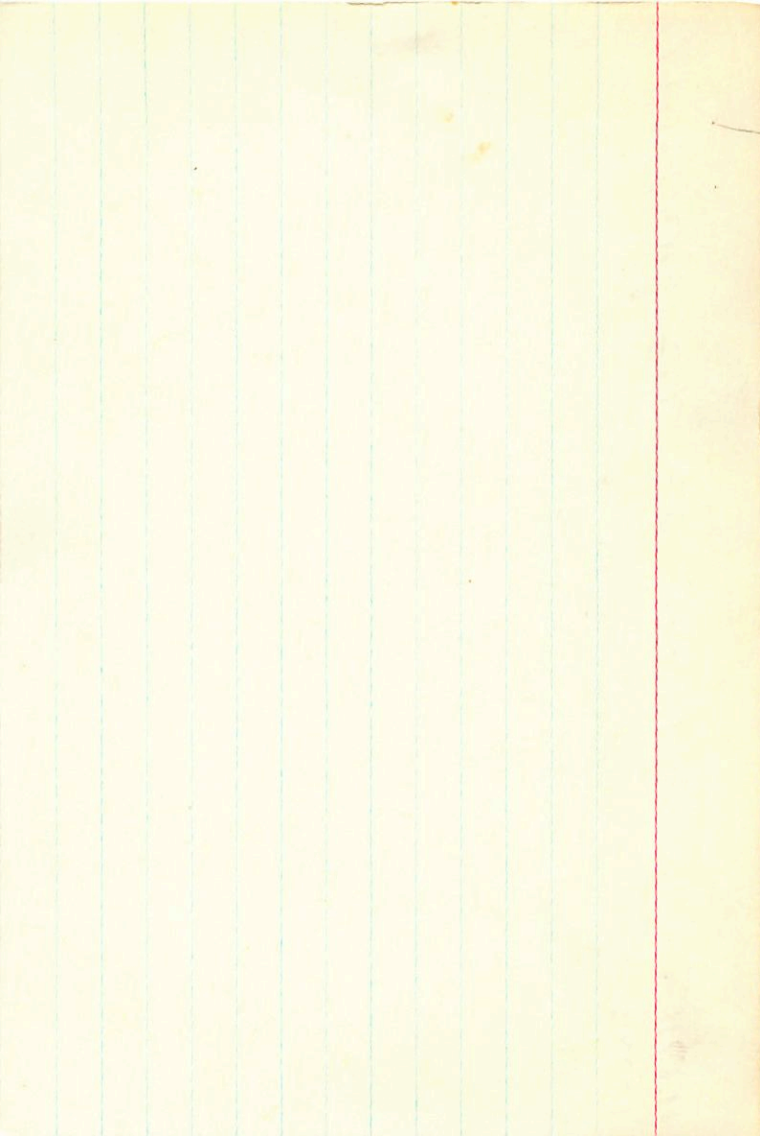
-0085 ± 2.6

5.724 98.5

4524 969

-00864 +021
-0957
-093 +026

9412 -9611 0966
2762 0007
-1323 +0.3
0102
4.97



~~Di Vi~~

5094

13

29.71

-18 25

-17

93 Vin = B 2542

-006 89 -0183

1476/77 < 0.035

p = 8 Sat

0001

-097 -014

Am = 0.2

20.569 65.76 1563 -018

Am = 0
0.1

$(\sigma_y)_0 = 0.096$ 9525

-9995

0.967

$\sigma_v = 0.959$ 3035

0190

-012

-5.4

$m_v = 1.8$

-13.8

0101

498

+1.15

6522 -50

-0001 ± 5.9 +022 ± 4.7
← 0012 +013

117697 13 29.5 +9 14 7.9 df9 +8.66

18291

8021 28.716 1902.7 +9 14 0.86 1900.0

$\begin{array}{r} 28.716 \\ \underline{21} \\ 28.657 \\ \underline{23} \\ .680 \end{array}$

$\begin{array}{r} -1.10 \\ \underline{59.76} \\ 00.85 \end{array}$ 1932.9
 $\begin{array}{r} -1.5 \\ \underline{00.20} \end{array}$

60000
 $\boxed{-50008 \pm 0.24}$

~~00022 ± 0227~~
 $\begin{array}{r} 15 \\ 00108 \\ \underline{009} \end{array}$ ± 027

$\boxed{8.03 + 0.56 + 0.07}$ } 3 20"

$\begin{array}{r} 465 \\ \underline{335} \end{array}$ +58 ± 02

5000

5098

117718

13

29.8

-29

19

F8TB-F

-20.2

4C

FD1700

6.44 + 0.44 (1.61)

18.6 (1)

GL18254

-0057 ± 2.8

-004 ± 3.0

46.417 1901.4

-0060

-006

$\frac{277}{.694}$

-0059

-005

31.73

1901.7

-230

-0055

-001

$\frac{+19}{31.54}$

-21

46.408

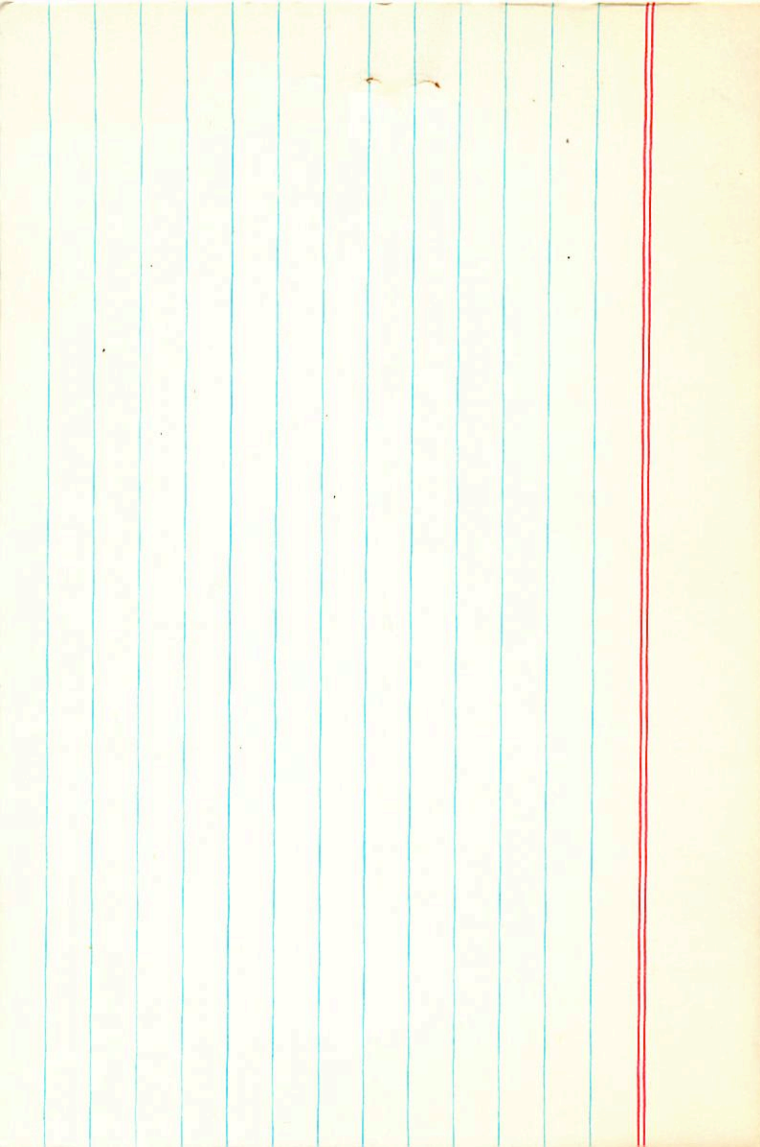
-072

31.60

1939.46

$\frac{-4}{464}$

$\frac{-15}{31.75}$



15.5
-8.5
13 258 -29 18 F5

-20.2

HR5098

6.45 70.42 0.00 2585

AS8129

4.0
1.0

+7
-0.73
[0.73 + 0.03]
-0.0585
-0.025
-0.006

.302 .159 .510 2.665 2.534

[m] 213 +15

[m] 450 93
+10H

3.00 +223 +4.0 -8.8
+265 -268 +80
+275
305
305
-072 -20.2
-0.01

5093.000

13.000

23.800

-23.000

-13.000

-3.073

3.003

3.750

55.234

-23.200

3.55 370
579

3.273

-3.581

258

27.122

-3.202

-3.612

74

220

1.002

74

3.066

3.537

+12.4 ± 1.8
A02

u.s.

-024 ± 4.9

33.57 88.4

-68.23

13 30.1

-0067 ± 6.4

5186 92.7

17651

18300

HR 3043

5.193
14
209
42.24 33.27
-30
33.67

9784 - 9267
-2204 - 2147

1058934

55

117846

13 30.1 + 3705

7.3 GIII -2478

8.2 FIVE: -20.88

8022

-22.8

-05 (3) (B)

Van

75V_{in}
117789

13 30.2 -15 06 5.6 g/12 -35.56

18305

8025

-0051²⁷ -009²⁷ N30

-00512.4 -00612.2 6.6 → N30

-00522.4 -00422.2

11078 98.6 -0059 -013 2365 94.6 -0052 -0008
247 / 345 0051 001 24.14

10.960⁹ 70.05 23.90 -0753

969

24.14

-074 -002

10.962

6589

23.06

-14
22

11.003

+18.1204-96 2.5.7 +17 32 144

$\frac{1}{2}$ 199 13

13 30 19.1 +17 2.70

500 AD
Dm=0.5, 3
mmp 1
pkn

A 0 @ NW DM4E
B +8C NW DM4E

(27)

Vignatuly 43094.1
64 M(6)

997 8.51 8.51
AB 9.97+1.00 ① 8.51 8.51

10.5 M 1115

MC-AC t304-225

9060 8.219 3678
-4382.562 0.04

0.284 -0.205 MCR 939
304 0.21

+0.295 -0.215

9776 8.207 364 0.1060362
3851 -5014 10.13 -0.13 -0.074
117 10.42 -0.09

PA 42-7

13 20.9 - 29.4

11755
11821

1005-102-1500
Fing 1500

120

103311 785 50

117936

1992771

1994 05+015-

1988+92-

1994

154 005-

803 }

$P = 0.47$

Runna 13 31.4 +54 15 ~~8~~ -1808 $w(7)$

mal 2 is 10.5

$$\Delta S = 8:$$

$$-019 \pm 5 - 043 \pm 5$$

$$\begin{array}{r} +3 \\ -2 \\ +1 \end{array} \quad \begin{array}{r} -1 \\ +1 \end{array}$$

-383 -924 811 585 -019 -043 -150 -035 -146 -119

-007 ~~4~~013 015 032 -184 025 +97 +40 001

~~8~~ 57 -124

~~4~~ 29 -209

96 -11 -124

-97 +65 -265

-34 -278 -59

13 01.7 -27 15

~~928~~ (3)

135
~~2725~~

~~624~~

~~145~~

~~2.8~~

~~928~~

A handwritten signature or set of initials in dark ink, located in the lower right quadrant of the page. The signature is stylized and appears to consist of several connected loops and lines.



13.500
- 27.250
- 624.000
- 145.000
2.800
36
- 92.800

- 0.781
0.249
- 0.573
1881.951
121.536

0.605
0.532
- 0.592
- 1955.784
- 16.034

- 0.153
0.889
0.566
- 140.729
- 57.632

~~6.44 (10/11)~~

-9.5 (2)

6.44 (10/11)

5104

25 13

31.9

-33 03

462.58
1050.0

084

52.591 2.1

-0074

-011^{±5.7} -0.2

80 $\sqrt{250}$
 $\frac{250}{250}$
250

374
945

-0258

017

-017.77

943

-0045 -019

-0043

-0044

-0045

54
17.18

-0043 -015

22591

52.664

56.24

18.27

36.21

05.10

25.140

-15
653

-43

42.58

52731

089

740

52.644
704

1870

2879

1509 56.2

1731

6551

70.50

18.20

52.445 1840

52.640

0.1
654

18.42

9545 9981
1840 1840
2993 -0618
0546
7450
0076
460

658

1762

W8039 -206 4W
-1256

13 220 -12 57

$\frac{109}{-012}$

-0031-013 -0.030

$\frac{0407}{0048}$
 $\frac{-041}{-010}$
-0029-014
-0033 ± 3.1
-0.028

0.696 1897, 9-1031
-1031

31.31 1894.1
 $\frac{1.072}{30.31}$

172
 $\frac{172}{1868}$

1929.68

-0.0032 -0.015 66 45.00
-0.0027 -0.009 11W
 $\frac{31.720}{30.710/50}$

40.996
19752

$\frac{0.741}{0.741}$
0.741 1.99

-0.0030 -0.012

0.741 1.99

31.20 30.80 1940.14

1002 1.984
 $\frac{215}{1.984}$

409

9860

+1579-0216 11303

-1237-0377 -1614

+0340-0366 -0026

100M

110M

+13.6 -10.0 +3.6 +5

-16.1 -8.7 -24.9 -27

-0.3 +11.9 +14.6 +15

7.03

7.72

0.96

0.939

3.11

3.11

3.104

3.11

3.11

3.11

49.02

42.40

31.42

50.70

1929.78

32.8

30.79

30.47

12 25.7 +45 04

-0177 ± 47 -022 ± 3.0
-173 -017

16498 39.325 19013

+45 4 14.131891.9

$$\begin{array}{r} 862 \\ \hline 40,187 \end{array}$$

$$\begin{array}{r} 1.28 \\ \hline 15.41 \end{array}$$

$$\begin{array}{r} 26.60 \\ 13.238 \\ \hline 39.838 \\ 39.753 \\ \hline .763 \\ \hline .764 \end{array}$$

$$\begin{array}{r} 33.2 \quad 1925.7 \\ -18.28 \\ \hline 14.92 \\ 15.019 \\ \hline 4.88 \end{array}$$

16494

39.705

1906.9

-0172#11.3 -01856.9
-0179
+45-4 4.64 1902.8

941
40,446

85
5.51

26.97

13.238

40.208
13.5
13.4
13.4

24.0

1924.3

-18.25

5.75

5.59

-1.8
5.75

Cont'd Ap 5 14 1624 Sp. B. P = 2.6 + 5 to 2000
+ 6.4 6.7

HR 5110 118216 13 32.6 + 37 26 d. 12 + 2.4 a
w 8045 18359 4.96 + 0.40 + 0.06 N + 0.8 F - 0.15 G C
8043 65 F 2.2 N + 0.5 Y - 0.14 N
14 ± 6 + 6.6 + 0.071 - 0.14 54 N 30 + 0.81 - 0.12 F
+ 0.074 ± 1.6 - 0.12 ± 1.5 G C → 1.30 + 0.84 - 0.14

+ 0.0691 - 0.133 F 1.4 3.4
+ 0.92

+ 0.84 - 0.09

-353 -920 607 754 +054 -014 +7.4 -008 +4.5 -052
033 003 -077 007 123 -351 +5.9 -5.4 -2.3

+0.6 -16.3 +2.4 025

-13.2 +9.4 +3.3

-2.3 -11.1 +3.2

040

-8.5 +6.3 +5.3

76



Handwritten text, possibly a signature or date, written in blue ink on aged paper. The text is partially obscured by a tear in the paper.

P =

HR 5110

13 32.6 +37 2.6

+74 a

W 8045

4.96 +0.40 +0.06 F 2.18

+088 -015 6c

264160 674

+085 -014 2

8 H 6 V m

+089 -012 5

100700 0121 674

+087 -014

-352-936 607 754 +087-014 +7.4 -008+4.5 -052
031-003-081007 114 -358 +5.9 -5.5 -2.1

$$-1.0 -18.1 + 2.4 \quad 0.25$$

$$\boxed{-14.9 + 19.4 + 5.0}$$

$$-2.7 -12.1 + 3.2 \quad 0.40$$

$$\boxed{-9.3 + 6.5 + 5.8}$$

118328

G-C18362

W 8046

Δm 8959 $\frac{1}{8}''$ 0.5

+3108

+680730

13 32.7 +68 01 dG-2 +20.38w(4)

8.56 +0.61 +0.07GIZ R

$\delta = .07$

+40 -12 +21 .020

+54 -20 +25 .015

-187 +014 GC

-174 +0.13 Gms Ast.

3 ± 1 G(8)

39.039 1905.5

1.486

40.525

~~39.36~~

~~39.42~~

~~44.42~~

~~57~~

~~41.9~~

39.497

~~033466.0~~

~~-0352~~

~~40.463.5~~

~~4003~~

468

1 26.39 1898.3

73

25.67

~~30.9~~ 1935.3

~~25.9~~

~~39.4~~

~~714~~

~~30.76~~

25.76

8000

118219

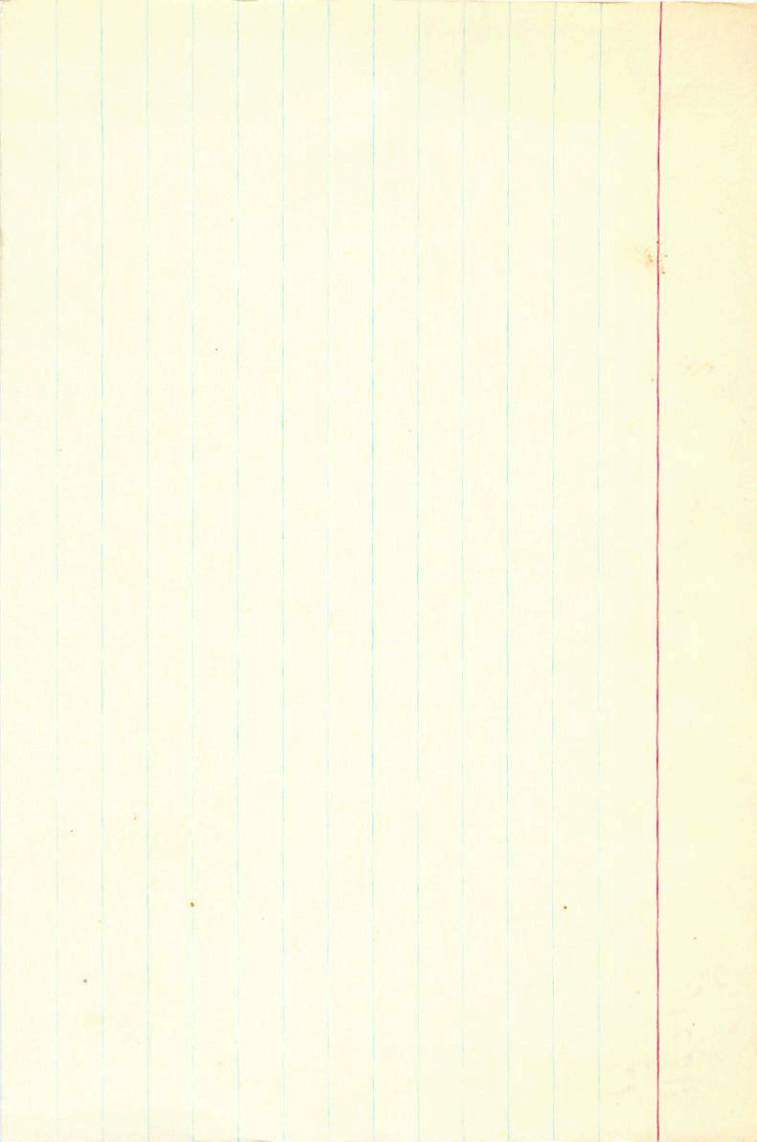
13 32.9 -05 09 5.8 966 -8.27

18366

8048

+0011 52 +082 43 N30

+00112.1 +079±1.9 66 → N30



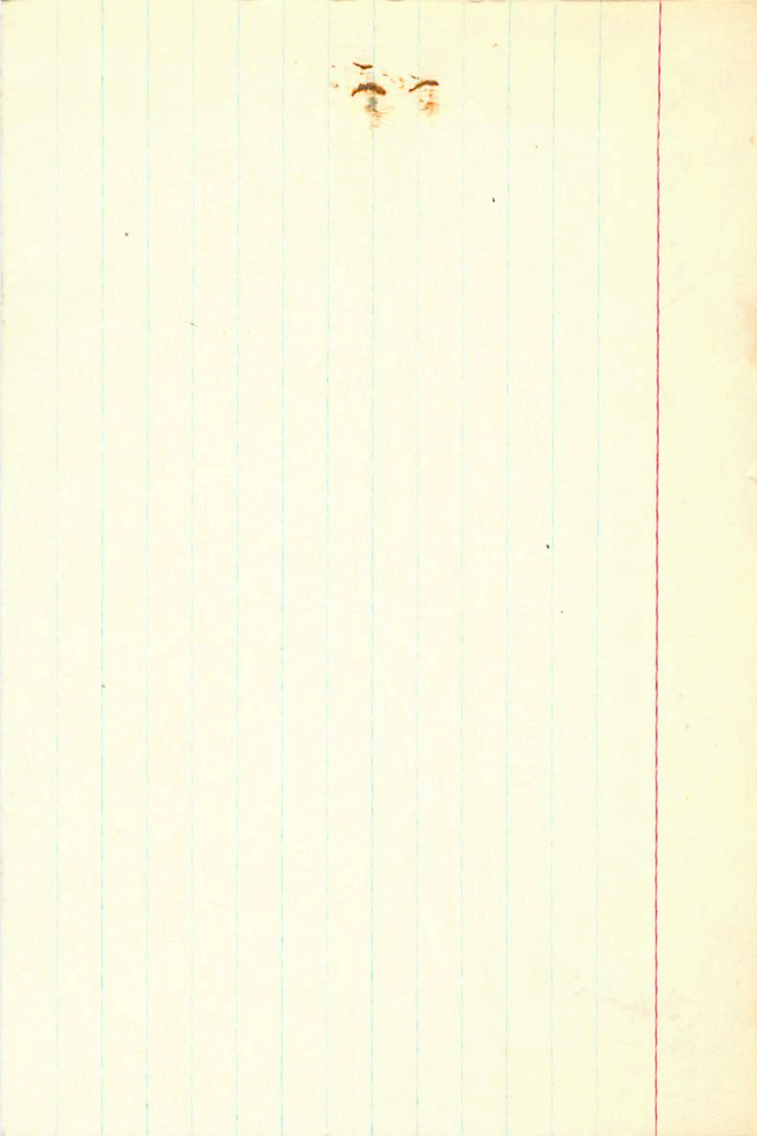
118295 13 33.1 44 27 6.6 Fom -25.66

18370

-0021⁴⁰ +011⁴² 130

8050

-01953.1 +011224662030



118289

13

334 + 8

33

9m4

955204+

+23.1

~~1000~~ + 1001 fut

~~1000~~ + 1001

~~1000~~ + 1001

~~1000~~ + 1001

1000 + 1001
+ 24
10037
+ 40

18

10434

1041 + 1008

(7)

(8)

1.38

5.27

4.86

3.05

5.13

4.23

1.38

1.38

1.38

8.25

10/9
10/9
10/9
10/9



77



116289.000*

13.000*

33.400*

8.000*

33.000*

-0.041*

0.000*

8.250*

446.684

23.100

0.171

-0.331

68.7

(B-V) 0 (m.08) (1.2) -3.7 NGC 2516

+1.47 +1.54 +0.52 -

4.46 +1.69 +0.50 1.44 III -3.6

and only the value of (2-13) differs by an appreciable amount. The spectral type of HD 55412 = HR 312 is

made from Jaacks (1970). The luminosity of both stars exhibit a luminosity classification somewhat brighter

than class III. No variation in the light of HD 55412 has been detected in observations by Jaacks (1970), Eggen (1972c) and more recent

118330 13 33.7 -00 41 7.0 dFLG +17.38

18882

8053

-0144¹⁵ -048 M30

-0152 ±5.6-058 ±5.5GL → M30

4²

1030

4

320

109

1

916

59

14

44

5/2

12

27
136
407

13 340 -26 14 A3

5120

118349

18389

5.78 10.22 10.20 C

(2)

5.78 132 171 1.027 2.820 15,19,149

6.72 1.24 106 C

Dud/51

-00685 1008

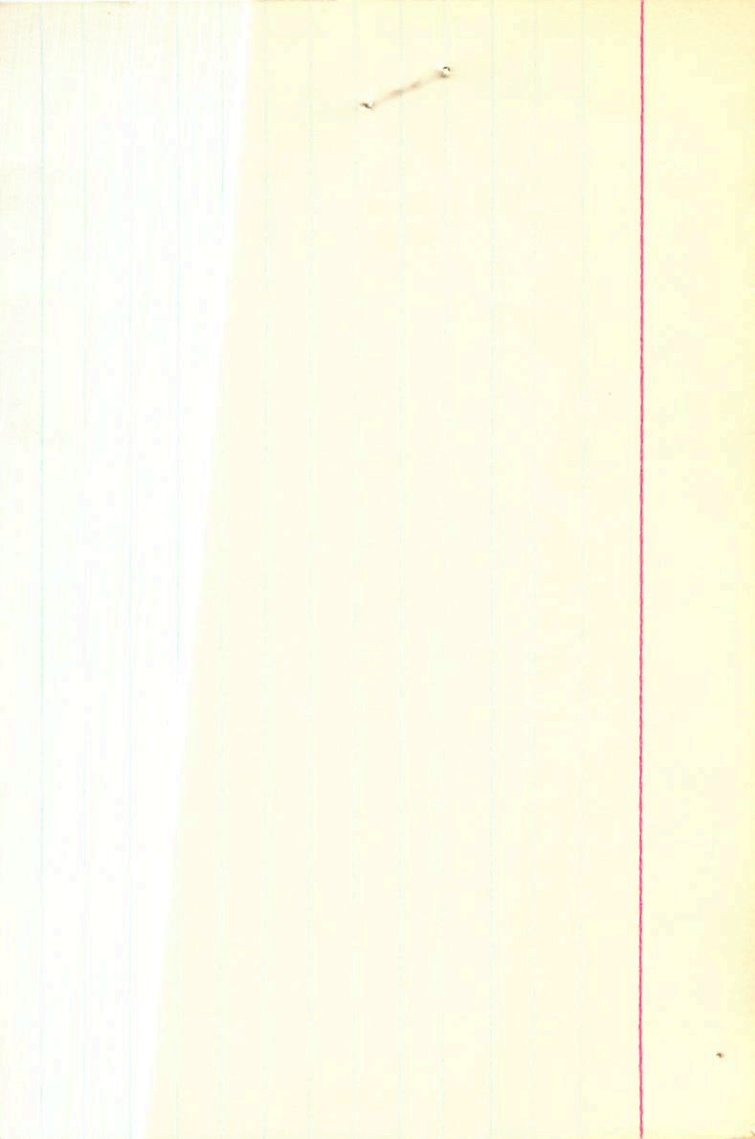
-00670 1104

-050

10.5
-089 1016

99

9456 9593
-3354-0762



118349 13 370-26 14 142 -8.51

11834

HR 5120

1884

5.4902

-093 +013 G-C

-092 +012 act

A0589668055 100 } 204
finp

$\Delta m = 0.95$

W8055

(2) K51

-0069 ± 2.5 + 013 ± 2.6
+0003
+0009

-399-917 -442597 -092+012 -8.5 -005 +4052

-037002-084005 -159 359 -8.6 +5 +3 01

-12 +42 +9
+40 +7 +5

1.604 1505.5 -26 14 26.64 1501.6

307
913
1.490
6416
2644
-389
2471
27 3 2
40.274
46.92
113395
11329.5
3 8.4
36.8

38.345
23.240
1.6035
724
730
1.602
1.690
2223

32.9

36.8

1.602
1.690
2223

27.162
27.2
57.03
2 4.96
1935.54
27.20
+1.12
27.07
+25

8

25332
93330
1.60411
1.51

0.212
0.444
2.7 + 10 / 37.45
1941.83

26

13.600
-26.250
-99.000
16.000
5.010
100
-9.500

-0.770
0.250
-0.587
343.022
40.038

0.612
0.550
-0.569
-215.802
-16.277

-0.181
0.797
0.576
136.547
8.245

246