ich erlaube mir daher um so mehr, die Beobachtung seiner Minima den Astronomen recht sehr zu empfehlen. Ich bemerke dabei, dass die Beobachtung mehrere Stunden nach dem Minimum fortgesetzt werden muss, um ein zuverlässiges Resultat zu erlangen, da die Zunahme des Lichtes anfangs sehr langsam ist

Vor Kurzem hat Herr Dr. *Krüger* bei Gelegenheit unserer Durchmusterung auch wieder einen Stern mit sehr

Bonn 1859 Dec. 15.

starker Eigenbewegung gefunden; es ist dies der Stern Groombridge *N* 34; seine Bewegung ist $+3^{\text{h}}85$ in AR., $+0^{\text{h}}40$ in Decl. und $+2^{\text{h}}84$ im Bogen des grössten Kreises, für einen schwachen Stern 8^m allerdings sehr bedeutend.

Noch erlaube ich mir, die Astronomen auf einen intensiv rothen Stern aufmerksam zu machen; es ist dies ein Stern schwach 8^m, dessen Position für 1855 ist $0^{\text{h}}12^{\text{m}}16^{\text{s}} +43^{\circ}54'$, und den *Krüger* gleichfalls aufgefunden hat.

Fr. Argelander.

Ephemeris of the Variable Stars for the Year 1860.

By *Norman Pogson*, Director of the Hartwell Observatory.

Star	Probable Mag.	Mean Place in 1860		Times of Maxima	Authority
		α	δ		
<i>TPiscium</i>	9.10	$0^{\text{h}}24^{\text{m}}46^{\text{s}}$	$+13^{\circ}46'$	May 7, Sept. 27.	<i>S.</i>
α Cassiopeiae	2	0 32 35	$+55^{\circ}46'$	Jan. 19, April 8, June 26, Sept. 14, Nov. 31	<i>A.</i>
<i>SPiscium</i>	9	1 10 15	$+8^{\circ}11'$	June ?	
<i>RPiscium</i>	7.8	1 23 25	$+2^{\circ}9'$	Early in June	
<i>RArietis</i>	8	2 8 10	$+24^{\circ}24'$	Jan. 16, July 21	<i>B.</i>
α Ceti	2	2 12 17	$-3^{\circ}37'$	Sept. 6, 5	<i>A.</i>
<i>RTauri</i>	8	4 20 38	$+9^{\circ}51'$	July 23	<i>W.</i>
<i>STauri</i>	10	4 21 32	$+9^{\circ}38'$	Febr. 17	<i>W.</i>
<i>ROrionis</i>	9	4 51 22	$+7^{\circ}55'$	May 26	<i>W.</i>
α Orionis	1	5 47 36	$+7^{\circ}23'$	June and December	
<i>RGeminorum</i>	7	6 58 56	$+22^{\circ}55'$	Jan. 15	<i>P.</i>
<i>RCanis min.</i>	8	7 1 0	$+10^{\circ}14'$	April ?	
<i>SCanis min.</i>	7.8	7 25 7	$+8^{\circ}37'$	August 22	<i>W.</i>
<i>SGeminorum</i>	9	7 34 38	$+23^{\circ}47'$	March 15 and 1861 Jan. 3	<i>P.</i>
<i>TGeminorum</i>	9	7 40 54	$+24^{\circ}5'$	October 13	<i>P.</i>
<i>UGeminorum</i>	9	7 46 48	$+22^{\circ}22'$	March 13, June 18, Sept. 23, Dec. 29. Irregular	<i>P.</i>
<i>RCancr</i>	6	8 8 51	$+12^{\circ}9'$	April 8	<i>A.</i>
<i>UCancr</i>	9	8 27 45	$+19^{\circ}23'$	October 29	<i>W.</i>
<i>SHydrae</i>	8.9	8 46 16	$+3^{\circ}36'$	August 26 so not observable	<i>W.</i>
<i>TCancr</i>	9.10	8 48 40	$+20^{\circ}23'$	Uncertain. Minimum July 1 so not observable	<i>W.</i>
<i>THydrae</i>	6.7	8 48 51	$-8^{\circ}37'$	July 18	<i>W.</i>
<i>RLeonis</i>	5	9 40 2	$+12^{\circ}5'$	Febr. 12 and 1861 Jan. 2. Minimum (10) Aug. 18	<i>P.</i>
<i>RUrsae maj.</i>	7	10 34 41	$+69^{\circ}31'$	Sept. 2 Minimum (13) May 12	<i>P.</i>
<i>RComae</i>	8	11 57 4	$+19^{\circ}34'$	October ?	<i>W.</i>
<i>RVirginis</i>	6.7	12 31 24	$+7^{\circ}46'$	Jan. 5, 6, May 29, 9, Oct. 22, 2	<i>A.</i>
<i>SUrsae maj.</i>	7.8	12 37 48	$+61^{\circ}52'$	June 2. Minima (12) Febr. 25, Oct. 7	<i>P.</i>
<i>UVirginis</i>	7.8	12 44 0	$+6^{\circ}19'$	April 8, Nov. 6	<i>W.</i>
<i>VVirginis</i>	7	13 20 36	$-2^{\circ}28'$	Possibly in March and November	<i>P.</i>
<i>RHydrae</i>	4	13 22 4	$-22^{\circ}33'$	August 31. Irregular	<i>B.</i>
<i>SVirginis</i>	6	13 25 42	$-6^{\circ}28'$	April 25. Minimum (11) Febr. 21	<i>P.</i>

Star	Probable Mag.	Mean Place in 1860		Times of Maxima	Authority
		α	δ		
<i>R</i> Bootis	8	14 ^h 31 ^m 1 ^s	+27° 21'	May 3, December 22	<i>W.</i>
<i>S</i> Serpentis	8	15 16 7	+14 49?	April 10	<i>A.</i>
<i>R</i> Coronae	6	15 42 49	+28 35	Oct. 15. Very irregular.	<i>B.</i>
<i>R</i> Serpentis	6.7	15 44 15	+15 34	September 10	<i>A.</i>
<i>R</i> Herculis	8.9	15 59 38	+18 45	April 7	<i>B.</i>
<i>S</i> Scorpii	9.10	16 9 17	—22 33	April. Magnitude very uncertain	<i>P.</i>
<i>R</i> Scorpii	9	16 9 19	—22 36	July. Uncertain	<i>P.</i>
<i>S</i> Ophiuchi	9	16 26 12	—16 52	Jan, 19, Sept. 7	<i>P.</i>
<i>S</i> Herculis	7.8	16 45 32	+15 11	March 16	<i>B.</i>
<i>R</i> Ophiuchi	7.8	16 59 44	—15 54	Jan. 4, Oct. 31	<i>P.</i>
α Herculis	3	17 8 16	+14 33	March 11, Mai 16, July 22, Sept. 26	<i>A.</i>
<i>T</i> Herculis	8	18 3 48	+31 0	Jan. 6, June 14, Nov. 21	<i>K.</i>
<i>R</i> Scuti	5	18 40 1	— 5 50	April 2, June 14, Aug. 24, Nov. 3. Irregular	<i>A.</i>
13 Lyrae	4	18 51 4	+43 46	{ Jan. 19, March 6, April 21, June 7 } { July 23, Sept. 8, Oct. 24, Dec. 10 }	<i>B.</i>
<i>R</i> Aquilae	6.7	18 59 38	+ 8 1	June 8	<i>W.</i>
<i>R</i> Sagittarii	8	19 8 28	—19 33	Not until 1861 February	<i>P.</i>
<i>R</i> Cygni	8	19 33 4	+49 53	August 3. Minimum (14) March 1	<i>P.</i>
χ Cygni	5	19 45 11	+32 33	March 10.	<i>A.</i>
<i>U</i> Capricorni	10.11	20 40 22	—15 18	Not until 1861 February	<i>P.</i>
<i>R</i> Vulpeculae	8	20 58 10	+23 16	Febr. 15, July 11, Dec. 5	<i>W.</i>
<i>T</i> Capricorni	9	21 14 17?	—15 45	April 25	
β Pegasi	2	22 57 0	+27 19	{ Jan. 19, April 14, May 28, Juli 10 } { Aug. 23, Oct. 5, Nov. 17, Dec. 31 }	<i>Aur.</i>
<i>R</i> Pegasi	8.9	22 59 37	+ 9 46	April 2	<i>A.</i>
<i>R</i> Aquarii	7	23 37 15	—16 3	June 24	<i>A.</i>
<i>R</i> Cassiopeiae	6	23 51 18	+50 37	June 25. Nimum (13) Jan. 9	<i>P.</i>

Minima of the Short Period Variable Stars during 1860
in Greenwich Mean Time and for the Earths Mean Distance from each Star.

A l g o l.

Maximum 2,3. Minimum 4,0. Variation completed in seven hours.

Jan. 2	16 ^h 35 ^m	April 3	10 ^h 39 ^m
5	13 24	20	15 32
8	10 13	23	12 21
11	7 2	26	9 10
22	18 17	May 13	14 3
25	15 6	16	10 52
28	11 55	June 5	12 34
31	8 44	8	9 23
Febr. 14	16 48	11	14 16
17	13 37	28	11 5
20	10 26	July 18	12 47
23	7 15	21	9 36
March 8	15 19	Aug. 7	14 29
11	12 8	10	11 18
14	8 57	30	13 0
31	13 50	Sept. 2	9 49

Sept. 19	14 ^h 42 ^m	Nov. 10	5 ^h 22 ^m
22	11 31	21	16 37
25	8 20	24	13 26
Oct. 9	16 24	27	10 15
12	13 13	30	7 4
15	10 2	Dec. 11	18 19
18	6 51	14	15 8
Nov. 1	14 55	17	11 57
4	11 44	20	8 46
7	8 33	23	5 35

λ T a u r i.

Maximum 4,0. Minimum 4,5. Variation rapid.

Jan. 31	13 ^h 8 ^m	Febr. 16	8 ^h 37 ^m
Febr. 4	12 0	20	7 29
8	19 52	Sept. 28	16 12
12	9 44	Oct. 2	15 4

ζ G e m i n o r u m .

Maximum 3,8.	Minimum 4,5.	Increasing 5 ^d 6 ^h .	
Jan. 30	5 ^h 48 ^m	April 20	12 ^h 12 ^m
Febr. 9	9 36	Oct. 30	12 24
19	13 24	Dec. 20	7 24
April 10	8 24	30	11 12

<i>S</i> C a n c r i .		$\alpha = 8^{\text{h}}35^{\text{m}}56^{\text{s}}$	$\delta = +19^{\circ}32'.$	
Maximum 8,0.		Minimum 10,5.	Variation rapid.	
Jan.	2	13 ^h 5 ^m	Sep ^r . 14	14 ^h 41 ^m
	21	12 18	Oct. 3	13 55
Febr.	9	11 32		22 13 9
	28	10 46	Nov. 10	12 23
March	18	10 0		29 11 37
April	6	9 14	Dec. 18	10 51

β L y r a e .

Principal Minimum (4,3). First Maximum (3,4). 3^d2^h after.
Second Min. (3,8) 6^h9^m after. Second Max. (3,4) 9^d10^h after.

Jan. 26	5 ^h 11 ^m	Sep ^r . 14	12 ^h 44 ^m
April 12	15 42	27	10 30
25	13 27	Oct. 10	8 15
May 8	11 12	23	6 0
21	8 58	Dec. 26	18 46
Sept. 1	14 59		

η A q u i l a e .

Maximum 3,6.	Minimum 4,4.	Increasing 2 ^d 9 ^b .	
Febr. 16	18 ^b 9 ^m	Aug. 21	8 ^h 15 ^m
March 23	15 20	28	12 29
April 28	12 30	Oct. 3	9 40
June 10	13 55	Nov. 8	6 50
July 16	11 5	Dec. 14	4 0
23	15 19		

δ C e p h e i .

Maximum 3,7.		Minimum 4,8.		Increasing 1 ^d 14 ^h .	
Jan.	4	14 ^h 33 ^m	April	15	13 38
	15	8 8	May	1	16 1
	20	16 56		12	9 37
	31	10 31		28	12 0
Febr.	16	12 54	June	13	14 23
March	3	15 17	July	10	10 21
	14	8 52		26	12 44
	30	11 15	Aug.	11	15 7

Aug. 22	8 42	Nov. 5	11 50
Sept. 7	11 5	16	5 25
23	13 28	21	14 13
Oct. 4	7 4	Dec. 2	7 48
9	15 51	7	16 31
20	9 27	18	10 11

The minima of λ Tauri were obligingly furnished by *M. Baxendell*. These of all the other short period Variables depend upon Prof. *Argelander's* last published elements of variation.

The initials in the last column of the first table stand for the names of *Argelander*, *Auwers*, *Baxendell*, *Krüger*, *Pogson*, *Schönfeld* and *Winnecke*, respectively. The times of maxima of the four stars without any letter annexed are merely probable conjectures; too uncertain to be given as upon any authority whatever! Dr. *Winnecke's* valuable paper in *Astr. Nachr.* 1224 and *M. Baxendell's* friendly communications, together with a preparatory discussion of several years observations of the stars given on my own responsibility, have enabled me to offer a far more trustworthy ephemeris than on any previous occasion; though nearly forty stars are still omitted from the want of satisfactory epochs and periods.

For *R* Arietis *Winnecke* gives the maxima Jan. 15, July 19
For *U* Geminorum = = = = March 11, Sept. 21,
Dec. 27.

For *S* Virginis = = = = April 21.

V Virginis is an interesting star discovered by Herr *Hermann Goldschmidt* in 1857. *S* and *S* Scorpii have unfortunately been incorrectly given in position hitherto. The place of the former although a mere estimation is fairly approximate; that of its neighbor *R* is from observation.

Dr. *Winnecke* gives the Declination of *S* Serpentis +14°29' instead of +14°49' and I am unable to say which is right, not having yet observed the star myself.

The Right Ascension of *T* Capricorni is also uncertain by several seconds.

In *Astr. Nachr.* 1183 Herr *Auwers* gives his independent discovery of change in δ Orionis. Sir *John Herschel* however positively declared this star to be variable many years back (see *R. A. S. Monthly Notices*, Vol. IV., p. 196), though I am not aware that any particulars of its variation were ever published, and even his assertion appears to have been overlooked.

Hartwell Observatory 1859 Dec. 24.

N. R. Pogson.

Literarische Anzeige.

Herr General *von Schubert* theilte mir mit, dass er bei der Benutzung der *Besselschen* Gradmessung in der Abhandlung „Essai d'une détermination de la véritable figure de la Terre,“ welche in № 1201 dieser Blätter angezeigt ist, einen Rechnungsfehler begangen habe. Um diesen Irrthum zu berichtigen und zugleich die Resultate der grossen Englischen Vermessung, wie sie in dem kürzlich erschienenen „Ordnance trigonometrical survey“ mitgetheilt sind, zu vergleichen, hat Herr *von Schubert* den letzten Bogen jener Abhandlung umdrucken lassen.

Die in № 1201 der A. N. abgedruckten Elemente des dreiachsigen Ellipsoids sind ungeändert geblieben und stellen

die Amplituden der verschiedenen Gradmessungen folgendermaassen dar:

	Abw. im Bogen
	Rechn.—Beob.
Bogen von Peru	+0''08
= = England	+0,74
= = Frankreich	—1,61
= vom Cap	—0,44
= von Preussen	+1,27
= = Russland	—1,29
= = Indien	+1,62

P.