XXXII. *Catalogue of North Polar Distances of Eighty-four principal fixed Stars, deduced from Observations made with the Mural Circle at the Royal Observatory.* By John Pond, *Esq. Astronomer Royal, F. R. S.*

Read July 8, 1813.

THE Catalogue, which I have the honour to transmit to the Society, is deduced from the whole of the observations made with the mural circle, from its first erection in June, 1812, to the present time. I am still employed in endeavouring to give it a greater degree of precision, and when it is entirely finished, I propose to submit some of the observations themselves to the Society, and explain the method by which the results have been obtained.

I have already mentioned, that I use neither level nor plumb-line; but determine the position of the instrument by means of a standard catalogue of stars derived from the instrument itself, in such a manner, that every series of observation of these stars, serves the double purpose of ascertaining the posi-sition of the instrument, and at the same time improving the Catalogue.

As the present Catalogue has been formed by frequently changing the position of the telescope on the circle, for the purpose of correcting every possible error of division, my observations have not been calculated to decide the question of parallax which has been suspected to exist in α Lyræ, α

Aquilæ, and some other stars.   But from this time forward, I propose to use the instrument in one position of the telescope, with the hope of ascertaining, if not the parallax of these stars, at least the limits, which it does not exceed.

Though the change of position in the telescope, by which all error of division is avoided, is one of the most beautiful properties of this instrument, yet so accurately is it divided, that I cannot perceive, with certainty, any effect produced by this change, for I have often found as great a discordance between two series of observations made on the same divisions, as when they are entirely changed by a new position of the telescope.   What the error of division may amount to in any one position, I cannot exactly say; but, I think, when the six microscopes are used, it can never exceed half a second, and very rarely amounts to half that quantity.

That some opinion may be formed of the accuracy of this instrument, I have subjoined to the Catalogue the results of the observations of some of the standard stars, whose places I am anxious to determine with the greatest precision, since I propose in future to determine all north polar distances by comparison with these stars; precisely in the same manner as right ascensions are now determined by comparison with the thirty-six stars, whose places have been so accurately determined by Dr. M<small>ASKELYNE</small>.

## GENERAL CATALOGUE.

| Names of Stars. | No. of Obs. | N. P. Distances Jan. 1, 1813. |
|---|---|---|
|  |  | °   ′   ″ |
| 1 γ PEGASI | 25 | 75  51  21,0 |
| 2 α CASSIOP. | 42 | 34  29  22,7 |
| 3 γ Cassiop. | 8 | 30  17  53,0 |
| 4 POLARIS | 200 | 1  41  21,75 |
| 5 δ Cassiop. | 14 | 30  44  26,8 |
| 6 α ARIETIS | 50 | 67  25  36,5 |
| 7 α CETI | 18 | 86  39   0,75 |
| 8 α PERSEI | 44 | 40  48  52,7 |
| 9 δ Persei | 10 | 42  49  16,4 |
| 10 η Tauri | 10 | 66  28  55,5 |
| 11 γ Eridani | 9 | 104   2  51,2 |
| 12 γ Tauri | 10 | 74  49  59,8 |
| 13 1 δ | 9 | 72  54  18,3 |
| 14 2 δ | 10 | 72  59  53,8 |
| 15 ε | 10 | 71  14  39,2 |
| 16 ALDEBARAN | 56 | 73  52  35,4 |
| 17 CAPELLA | 80 | 44  12  20,5 |
| 18 RIGEL | 30 | 98  25  33,8 |
| 19 β TAURI | 50 | 61  33  43,6 |
| 20 γ Orionis | 8 | 83  49  48,3 |
| 21 δ | 18 | 90  26  48,6 |
| 22 ε | 14 | 91  19  48,5 |
| 23 ζ | 16 | 92   3   1,8 |
| 24 α ORIONIS | 50 | 82  38  15,7 |
| 25 γ Geminorum | 12 | 73  27   5,8 |
| 26 ε | 11 | 64  41  41,4 |
| 27 SIRIUS | 34 | 106  28   0,7 |
| 28 δ Geminorum | 11 | 67  41   1,9 |
| 29 η Canis Major | 6 | 118  56  42,7 |
| 30 CASTOR | 30 | 57  42  46,7 |

| Names of Stars. | No. of Obs. | N. P. Distances begin. 1813. |
|---|---|---|
| 31 PROCYON | 40 | 84 18 14,4 |
| 32 POLLUX | 40 | 61 31 56,3 |
| 33 α HYDRÆ | 10 | 97 51 11,3 |
| 34 ε Leonis | 4 | 65 22 11,3 |
| 35 REGULUS | 62 | 77 7 22,7 |
| 36 ζ Leonis | 4 | 65 39 17,3 |
| 37 γ | 4 | 69 12 59,7 |
| 38 α URS. MAJ. | 60 | 27 14 31,5 |
| 39 δ Leonis | 3 | 68 27 11,3 |
| 40 β LEONIS | 24 | 74 22 57,7 |
| 41 γ URS. MAJ. | 48 | 35 15 55,3 |
| 42 δ Urs. Maj. | 13 | 31 55 38,2 |
| 43 κ Draconis | 3 | 19 10 45,3 |
| 44 δ Virginis | 3 | 85 34 58,6 |
| 45 α SPICA. VIRG. | 20 | 100 10 51,3 |
| 46 η URS. MAJ. | 80 | 39 44 57,9 |
| 47 α Draconis | 12 | 24 43 38,2 |
| 48 ARCTURUS | 80 | 69 50 19,1 |
| 49 θ Bootes | 6 | 37 16 49,7 |
| 50 π | 7 | 72 46 25,8 |
| 51 ε | 12 | 62 7 52,4 |
| 52 1 ⎫ α LIBRÆ | 15 | 105 15 22,7 |
| 53 2 ⎰ | 4 | 105 12 38,7 |
| 54 β URS. MIN. | 90 | 15 4 49,0 |
| 55 β Libra | 8 | 98 41 3,4 |
| 56 α COR. BOR. | 90 | 62 38 55,4 |
| 57 α SERPENTIS | 70 | 82 38 39,3 |
| 58 δ Scorpii | 9 | 112 4 41,4 |
| 59 1 β | 8 | 109 16 55,7 |
| 60 2 β | 7 | 109 16 43,6 |

| Names of Stars. | No. of Obs. | N. P. Distances begin. 1813. | | |
|---|---|---|---|---|
| | | ° | ′ | ″ |
| 61  δ Ophiuchi | 16 | 93 | 12 | 9,8 |
| 62  ANTARES | 36 | 116 | 0 | 16,6 |
| 63  ζ Herculis | 10 | 58 | 3 | 4,7 |
| 64  α HERCULIS | 50 | 75 | 23 | 14,0 |
| 65  α OPHIUCHI | 70 | 77 | 17 | 39,2 |
| 66  γ DRACONIS | 90 | 38 | 29 | 3,7 |
| 67  α LYRÆ | 100 | 51 | 23 | 0,5 |
| 68  ζ Aquilæ | 13 | 76 | 24 | 19,0 |
| 69  δ Draconis | 21 | 22 | 40 | 0,5 |
| 70  δ Aquilæ | 10 | 87 | 14 | 53,4 |
| 71  γ Aquilæ | 38 | 79 | 50 | 0,6 |
| 72  α AQUILÆ | 100 | 81 | 36 | 58,7 |
| 73  β Aquilæ | 12 | 84 | 3 | 4,1 |
| 74  1 α ⎫CAPRICORNI | 35 | 103 | 5 | 35,4 |
| 75  2 α ⎭ | 28 | 103 | 6 | 52,3 |
| 76  α Delphini | 10 | 74 | 44 | 23,9 |
| 77  α CYGNI | 80 | 45 | 22 | 56,9 |
| 78  α CEPHEI | 40 | 28 | 12 | 12,5 |
| 79  β Aquarii | 13 | 96 | 23 | 11,9 |
| 80  β CEPHEI | 50 | 20 | 5 | 30,6 |
| 81  δ Capricorni | 12 | 106 | 58 | 6,6 |
| 82  α AQUARII | 20 | 91 | 13 | 21,6 |
| 83  α PEGASI | 20 | 75 | 47 | 51,8 |
| 84  α ANDROMEDÆ | 35 | 61 | 56 | 29,6 |

## RESULTS OF OBSERVATIONS.

### β *Ursæ Minoris.*

| | | | |
|---|---|---|---|
| 1812, June 12, 13, 14, 16, 17, 21, 22, 23, 28, 29 - | 49,659 | Mean of 10 | 49,659 |
| June 30, July 6, 8, 9, 18, 20, 21, 22, 28, Aug. 7 - | 48,926 | Mean of 20 | 49,292 |
| Aug. 13, 15, 17, 18, 19, Sept. 15, 16, 20, 21, Oct. 2 - | 48,996 | Mean of 30 | 49,194 |
| Oct. 4, 18, 13, 19, 21, 25, 26, 28, 29 - - | 48,617 | Mean of 40 | 49,049 |
| Oct. 31, Nov. 9, 14, 18, 21, 22, 23, Dec. 7, 8, 12 - | 48,485 | Mean of 50 | 48,937 |
| Dec. 14. 1813 May 21, 26, 27, 28, 29, 31, June 1, 4, 7 | 48,951 | Mean of 60 | 48,939 |
| June 8, 11, 12, 16, 21, 22, 25, July 4, 5, 6, - - | 49,695 | Mean of 70 | 49,047 |
| July 9, 12, 16, 17, 18, 20, 22, 24, 25, 26 - - | 48,651 | Mean of 80 | 48,998 |
| July 28, 29, 30, Aug. 4, 7, 9, 12, 13, 16, 18 - | 48,616 | Mean of 90 | 48,955 |

This result is probably exact to within a quarter of a second.
The discordances seem quite accidental, they neither arise from
parallax, nor error of division, for the three last series were
made with the telescope in the same position, and consequently
upon the same division, yet they differ more than observations
usually do, which are made in different positions.

### β Cephei.

| | | | |
|---|---|---|---|
| 1812, Oct. 22, 24, 26, 29, 31, Nov. 3, 4, 21, 22, Dec. 5 | } 30,574″ | Mean of 10 | 30,574″ |
| Dec. 8, 9, 13. 1813, Mar. 16, 20, Apr. 1, 2, 3, 8, 14 | } 30,343 | Mean of 20 | 30,458 |
| Aug. 11, 12, 13, 15, 16 17, 19, 20, 22, 23 - - | } 30,985 | Mean of 30 | 30,634 |
| Aug. 24, 25, 26, 30, 31, Sept. 2. 3, 4, 5, 6 - - | } 30,894 | Mean of 40 | 30,699 |

This result is probably exact to a quarter of a second.

### α Ursæ Major.

| | | | |
|---|---|---|---|
| 1812, June 13, 29, July 9, 10, 15, 20, Aug. 14, Oct. 1, 2, 3 | } 31,500″ | Mean of 1c | 31,500″ |
| Oct. 4, 6, 14, 15, 18, 19, 20, 23, 27, 28 - - | } 31,596 | Mean of 20 | 31,548 |
| Oct. 30, Nov. 4, 5, 9. 1813, Mar. 23, 26, 29, 31, Apr. 2, 3 | } 31,525 | Mean of 30 | 31,540 |
| Apr. 4, 7, 8, 9, 10, 12, 13, 14, 20, 26 - - - | } 31,731 | Mean of 40 | 31,588 |
| May 24, 26, 31, June 1, 7, 8, 9, 11, 16, 25 - | } 31,124 | Mean of 50 | 31,495 |
| June 26, 27, July 6, 10, 18, 20, 25, 30, Aug. 5, 6 - | } 31,279 | Mean of 60 | 31,459 |

This result seems to be extremely exact, and probably does
not differ more than one-tenth of a second from the truth.

### α Cephei.

| | | | |
|---|---|---|---|
| 1812, Oct. 28, 29, 31, Nov. 3, 21, 22, Dec. 5, 8, 9, 13 | } 12,484″ | Mean of 10 | 12,484″ |
| 1813, Mar. 20, Apr. 1, 3, 8, 12, Aug. 11, 12, 13, 15, 16 | } 12,735 | Mean of 20 | 12,610 |
| Aug. 17, 19, 20, 21, 22, 23, 24, 25, 30, 31 - - | } 12,435 | Mean of 30 | 12,551 |
| Sept. 2, 3, 4, 5, 6, 7, 8, 9, 10, 14 - - | } 12,228 | Mean of 40 | 12,470 |

## α *Cassiop.*

| | | | |
|---|---|---|---|
| 1812, June 17, 22, 28, July 6, 7, Oct. 26, 28, 29, 31, Nov. 3 | } 22,839 | Mean of 10 | 22,839 |
| Nov. 4, 5, 6, 7, 19, 20, 22, 28, 29, Dec. 6        -             - | } 22,456 | Mean of 20 | 22,647 |
| Dec. 7, 8, 9, 10.  1813, Jan. 9, 10, 16, 22, 24, Apr. 8    - | } 522,59 | Mean of 30 | 22,630 |
| Apr. 9, 11, 17, May 26, 27, 28, 31, June 7, 10, 12      - | } 23,041 | Mean of 40 | 22,726 |

This result may, I think, be relied on, to a quarter of a second.

## γ *Ursæ Major.*

| | | | |
|---|---|---|---|
| 1812, June 22, Oct. 27, 28, Nov. 3, 5, 6, 21, 24, Dec. 6. 1813, Mar. 17       - | } 55,440 | Mean of 10 | 55,440 |
| Mar. 21, Apr. 1, 3, 4, 7, 8, 9, 10, 11, 12      -            - | } 54,975 | Mean of 20 | 55,207 |
| Apr. 13, 14, 16, 17, 20, 26, May 22, 26, 28, 29    - | } 55,489 | Mean of 30 | 55,301 |
| May 31, June 1, 7, 8, 12, 23, 25, 27, July 5, 6      - | } 55,457 | Mean of 40 | 55,340 |
| July 16, 20, 30, Aug. 7, 20, 31, Sept. 12, 14    -          - | } 54,952 | Mean of 48 | 55,275 |

This result, like the last, is probably exact to a quarter of a second.

γ *Draconis.*

| | | | |
|---|---|---|---|
| 1812, June 15, 16, 21, 23, 28, 29, July 6, 7, 8, 9      - | } 3,845 | Mean of 10 | 3,845 |
| July 10, 11, 14, 17, 19, 20, 21, 22, 28, 29      -      - | } 3,779 | Mean of 20 | 3,812 |
| July 30, 31, Aug. 1, 3, 12, 13, 15, 17, 20, 21      -      - | } 3,182 | Mean of 30 | 3,602 |
| Sept. 15, 16, 18, 19, 20, 21, Oct. 1, 3, 5, 8      -      - | } 3,604 | Mean of 40 | 3,603 |
| Oct. 9, 15, 21, 24, 26, 28, 29, 31, Nov. 3, 6      -      - | } 3,651 | Mean of 50 | 3,612 |
| Nov. 8, 15, 19, 20, 21, 22, 23, Dec. 5, 6, 8      -      - | } 3,877 | Mean of 60 | 3,656 |
| Dec. 9, 10, 13, 15. 1813, June 22, 24, 25, 26, 27, 28   - | } 3,471 | Mean of 70 | 3,635 |
| July 5, 6, 9, 10, 11, 12, 13, 16, 17, 18      -      - | } 3,980 | Mean of 80 | 3,674 |
| July 19, 20, 22, 23, 24, 25, 26, 27, 28, 29      -      - | } 3,477 | Mean of 90 | 3,652 |

This determination of γ Draconis is extremely exact. Its zenith distance has also been determined, with equal accuracy, by 120 observations made with the zenith sector during the years 1811 and 1812: the mean of above 60 observations of 1811 do not differ more than one-tenth of a second from the mean of an equal number in 1812.

Mean zenith distance  beginning  of 1813  by

| | ′ | ″ |
|---|---|---|
|    observations of 1811      -      -      - | 2 | 17.8 |
| By observations in 1812      -      -      - | 2 | 17.9 |
| Mean zen. distance by zenith sector      - | 2 | 17.85 |
| N. P. D. by mural circle   .      -      - | 38 29 | 3.65 |
| Sum or Co. latitude      -      -      - | 38 31 | 21.5 |

## η *Ursæ Major.*

| | | | |
|---|---|---|---|
| 1812, June 11, 12, 13, 14, 15, 17, 20, 20, 22, 23, 24 - | } 57,671 | Mean of 10 | 57,671 |
| June 28, July 6, 7, 8, 9, 11, 15, 18, 20, 28 - - | } 58,069 | Mean of 20 | 57,870 |
| Aug. 7, 15, 19, 20, 22, Sept. 16, 18, 20, 21, Oct. 4 - | } 58,138 | Mean of 30 | 57,966 |
| Oct. 5, 7, 8, 24, 28, 30, Nov. 5, 6, 7, 14 - - | } 58,000 | Mean of 40 | 57,969 |
| Nov. 18, 21, 23, Dec. 5, 8, 23. 1813, May 26, 28, 31, June 1 | } 57,348 | Mean of 50 | 57,845 |
| June 4, 7, 10, 11, 12, 16, 21, 22, 23, 25 - - - | } 58,123 | Mean of 60 | 57,891 |
| June 26, 27, July 5, 6, 9, 16, 18, 19, 20, 22 - | } 58,057 | Mean of 70 | 57,915 |
| July 24, 27, 28, 29, 30, Aug. 3, 12, 13, 16, 19 - | 57,641 | Mean of 80 | 57,881 |

This result is probably not inferior in precision to the last.

## α *Persei.*

| | | | |
|---|---|---|---|
| 1812, July 7, 9, 17, 20, 21, 28, Aug. 16, 17, Dec. 8, 12 | } 52,970 | Mean of 10 | 52,970 |
| Dec. 13, 14, 28. 1813, Jan. 8, 10, 11, 22, 24, 28, Feb. 5 | } 52,417 | Mean of 20 | 52,693 |
| Feb. 23, March 1, 4, 6, 7, 17, 19, Apr. 11, 12, 13 - | } 52,468 | Mean of 30 | 52,618 |
| Apr. 14, 18, May 27, 28, June 1, 19, 20, July 6, 15, 17 | } 52,824 | Mean of 40 | 52,670 |

Exact to a quarter of a second.

*Capella.*

| | | | |
|---|---|---|---|
| 1812, June 15, 26, 28, July 7, 8, 9, 10, 14, 20, 23    - | } 20,987″ | Mean of 10 | 20,987″ |
| July 28, 30, Aug. 13, 16, 17, 19, 21.  1813, Jan. 2, 7, 8 | } 21,009 | Mean of 20 | 20,998 |
| Jan. 10, 11, 16, 22, 24, 27, 28, 31, Feb. 23, Mar. 1    - | } 20,719 | Mean of 30 | 20,905 |
| Mar. 2, 3, 5, 6, 7, 12, 17, 18, 22, Apr. 8    -    - | } 19,951 | Mean of 40 | 20,667 |
| Apr. 9, 10, 11, 12, 13, 14, 15, 17, 18, 20    -    - | } 21,124 | Mean of 50 | 20,758 |
| Apr. 21, May 28, 29, June 1, 2, 20, July 4, 5, 6, 12    - | } 19,537 | Mean of 60 | 20,555 |
| July 15, 16, 17, 22, 23, 25, 28, 29, 30, 31    -    - | } 20,258 | Mean of 70 | 20,512 |
| Aug. 3, 5, 6, 8, 9, 10, 11, 13, 15, 17    -    - | } 20,061 | Mean of 80 | 20,468 |

One of the above series differs a second from the mean of the whole, a circumstance very unusual, but quite uncon-nected with error of division, I attribute it to want of sufficient care in reading off the microscopes. The mean result may, nevertheless, be depended upon to a quarter of a second.

### α *Cygni.*

| | | | |
|---|---|---|---|
| 1812, Sept. 15, 16, 17, 18, 20, 21, Oct. 2, 3, 4, 5 | 56,846 | Mean of 10 | 56,846 |
| Oct. 8, 10, 13, 14, 16, 22, 23, 24, Nov. 7, 8 | 56,568 | Mean of 20 | 56,707 |
| Nov. 15, 19, 20, 21, 22, 23, 24, Dec. 8, 9, 10 | 56,980 | Mean of 30 | 56,798 |
| Dec. 13, 30. 1813, Jan. 8, 9, 10, 16, 22, Feb. 8, 9, 10 | 57,405 | Mean of 40 | 56,925 |
| Feb. 15, 28, March 6, 11, 12, 16, 20, 26, 27, Apr. 1 | 57,178 | Mean of 50 | 56,975 |
| July 27, 28, 29, 30, Aug. 3, 4, 5, 7, 9, 10 | 56,665 | Mean of 60 | 56,940 |
| Aug. 11, 12, 13, 15, 17, 19, 20, 21, 22, 23 | 56,887 | Mean of 70 | 56,947 |

Result very exact.

### α *Lyræ.*

| | | | |
|---|---|---|---|
| 1812, July 6, 7, 9, 10, 14, 17, 21, 22, 23, 26 | 0,123 | Mean of 10 | 0,123 |
| July 28, 30, 31, Aug. 1, 6, 12, 13, 15, 16, 17 | 0,514 | Mean of 20 | 0,318 |
| Aug. 18, 19, 20, 21, Sept. 15, 16, 18, 19, Oct. 1, 2 | 0,364 | Mean of 30 | 0,334 |
| Oct. 3, 4, 5, 8, 9, 10, 12, 15, 16, 19 | 0,299 | Mean of 40 | 0,325 |
| Oct. 21, 24, 26, 28, 29, 31, Nov. 2, 3, 7, 8 | 0,983 | Mean of 50 | 0,457 |
| Nov. 13, 15, 19, 20, 21, 22, 23, Dec. 2, 6, 8 | 0,857 | Mean of 60 | 0,522 |
| Dec. 9, 10, 12, 13. 1813, Jan. 2, 7, 9, 15, 21, June 22 | 0,514 | Mean of 70 | 0,521 |
| June 23, 24, 25, 26, 27, 28, July 5, 6, 9, 10 | 0,501 | Mean of 80 | 0,519 |
| July 11, 12, 13, 16, 17, 18, 19, 23, 24, 25 | 0,187 | Mean of 90 | 0,482 |

### Castor.

| | | | |
|---|---|---|---|
| 1812, Aug. 13, 19, 21.  1813, Jan. 16, 24, 28, Mar. 5, 7, 10, 16   -      - | } 46˝,916 | Mean of 10 | 46˝,916 |
| Mar. 18, 23, 31, Apr. 3, 8, 11, 13, 15, 28, June 1     - | } 46,672 | Mean of 20 | 46,794 |
| Aug. 11, 14, 16, 23, 24, 28. Sept. 2, 6, 7, 10    - | } 46,596 | Mean of 30 | 46,728 |

### Pollux.

| | | | |
|---|---|---|---|
| 1812, June 13, 15, 19, Aug. 13, 16, 17, 19, Oct. 1, 3, 4 | } 56˝,536 | Mean of 10 | 56˝,536 |
| Oct. 11.  1813, Jan. 16, 22, 24, Feb. 28, Mar. 5, 10, 13, 18, 23 | } 56,332 | Mean of 20 | 56,434 |
| Mar. 31, Apr. 8, 11, 13, 15, May 28, June 1, 25, July 28, 30 | } 56,313 | Mean of 30 | 56,394 |
| Aug. 3, 5, 11, 16, 22, 23, 24, 25, 28, Sept. 1    - | } 56,380 | Mean of 40 | 56,341 |

Exact to a quarter of a second.

### β Tauri.

| | | | |
|---|---|---|---|
| 1812, July 20, 22, 30, Aug. 13, 19, 21, Nov. 19, 28.  1813, Jan. 2, 8    -     - | } 43˝,650 | Mean of 10 | 43˝,650 |
| Jan. 10, 11, 13, 24, 25, 27, 28, 31, Mar. 1, 3     - | } 43,438 | Mean of 20 | 43,544 |
| Mar. 5, 6, 7, 12, 17, 18, 19, 31, Apr. 9, 10    -     - | } 43,410 | Mean of 30 | 43,499 |
| Apr. 11, 12, 14, July 15, 16, 17, 25, 28, 29, 30    -     - | } 43,903 | Mean of 40 | 43,600 |
| July 31, Aug. 6, 8, 9, 11, 15, 18, 20, 22, 23    - | } 43,820 | Mean of 50 | 43,663 |

Exact to less than a quarter of a second.

## α *Cor. Bor.*

| | | | |
|---|---|---|---|
| 1812, June 11, 12, 13, 14, 15, 19, 21, 22, 23, 28 - | } 55,441″ | Mean of 10 | 55,441″ |
| June 30, July 4, 6, 8, 9, 15, 18, 19, 20, 21 - - | } 55,295 | Mean of 20 | 55,368 |
| July 22, 26, 28, Aug. 13, 15, 17, 18, 19, Sept. 15, 16 | } 55,316 | Mean of 30 | 55,351 |
| Sept. 19, 20, 21, Oct. 3, 4, 5, 6, 8, 19, 20 - - | } 56,041 | Mean of 40 | 55,523 |
| Oct. 26, 28, 29, 31, Nov. 20, 21, 22, Dec. 7, 12, 14 - | } 55,791 | Mean of 50 | 55,577 |
| 1813, Jan. 8, 9, 11, May 29, June 7, 8, 10, 12, 16, 18 | } 54,833 | Mean of 60 | 55,453 |
| June 21, 22, 24, 25, 27, 29, July 5, 6, 10, 12 - | } 55,008 | Mean of 70 | 55,389 |
| July 16, 17, 18, 19, 20, 23, 24, 26, 27, 28 - - | } 55,487 | Mean of 80 | 55,401 |

Exact to less than a quarter of a second.

## α *Arietis.*

| | | | |
|---|---|---|---|
| 1812, June 18, 19, 22, 23, 26, 28, July 6, 7, 9, 10 - | } 37,380″ | Mean of 10 | 37,380″ |
| July 14, 17, 20, 21, 22, Aug. 17, Oct. 24, 25, 26, 28 - | } 36,263 | Mean of 20 | 36,822 |
| Oct. 29, 31, Nov. 3, 5, 6, 7, 8, 9, 15, 19 - - | } 35,811 | Mean of 30 | 36,485 |
| Nov. 21, 22, 24, 28, 29, Dec. 6, 7, 8, 13. 1813, Jan. 8 | } 36,532 | Mean of 40 | 36,497 |
| Jan. 9, 16, May 22, June 19 20, July 4, 5, 6, 11, 16 | } 36,474 | Mean of 50 | 36,492 |

I mentioned this star as doubtful in my former Catalogue. I believe the discordances were quite accidental, and that the mean result is within a quarter of a second of the truth.

*Arcturus.*

| | | | |
|---|---|---|---|
| 1812, June 11, 12, 13, 15, 16, 19, 20, 21, 28, 29　- | } 18,729 | Mean of 10 | 18,729 |
| July 4, 6, 7, 8, 9, 11, 15, 18, 20, 26　-　- | } 19,867 | Mean of 20 | 19,298 |
| July 18, 31, Aug. 7, 14, 18, 19, Sept. 20, 21, Oct. 2, 4　- | } 19,341 | Mean of 30 | 19,312 |
| Oct. 7, 9, 13, 16, 18, 24, 25, 26, Nov. 3, 5　-　- | } 19,225 | Mean of 40 | 19,291 |
| Nov. 6, 7, 14, 18, 21, 22, 23, Dec. 6, 7, 8　-　- | } 19,453 | Mean of 50 | 19,323 |
| Dec. 12, 14, 23.　1813, May 24, 26, 27, 28, 31, June 1, 4 | } 18,761 | Mean of 60 | 19,230 |
| June 7, 8, 10, 11, 12, 16, 21, 22, 25, 26　-　- | } 18,585 | Mean of 70 | 19,137 |
| June 27, July 5, 6, 7, 9, 12, 16, 18, 19, 23　-　- | } 18,653 | Mean of 80 | 19,077 |

Exact to a quarter of a second, or less.

*Aldebaran.*

| | | | |
|---|---|---|---|
| 1812, June 23, 28, July 5, 7, 8, 9, 10, 25, 26, 28　- | } 35,614 | Mean of 10 | 35,614 |
| Aug. 14, 16, 17, 19, 21, Sept. 5, Dec. 25, 28.　1813, Jan. 8, 10 | } 35,135 | Mean of 20 | 35,374 |
| Jan. 11, 16, 22, 24, 28, 31, Feb. 23, Mar. 1, 6, 7　- | } 35,475 | Mean of 30 | 35,407 |
| Mar. 11, 17, 18, 19, 31, Apr. 4, 8, 9, 10, 11　-　- | } 35,390 | Mean of 40 | 35,402 |
| Apr. 12, 14, 15, June 28, July 6, 8, 10, 15, 16, 17　- | } 35,347 | Mean of 50 | 35,392 |
| July 23, 25, 27, 28, 29, 30 | 35,142 | Mean of 56 | 35,365 |

Result very exact.

## β *Leonis.*

| | | | |
|---|---|---|---|
| 1812, June 13, 14, 15, 22, 29, July 6, 8, 9, 11, 12 - | } 57,544 | Mean of 10 | 57,544 |
| July 15, 23, Oct. 2, 3, 4, 6, 7, 14, 15, 22 - - | } 57,077 | Mean of 20 | 57,310 |

This star has not been often observed, owing to its proximity in right ascension to γ Urs. Maj.; but the result is probably exact to within 0″,3, as it very seldom happens that the mean of twenty observations differs a quarter of a second from the truth

## α *Herculis.*

| | | | |
|---|---|---|---|
| 1812, July 11, 14, 30, Aug. 3, 7, 15, 17, 18, 20, Sept. 19 | } 13,835 | Mean of 10 | 1,3835 |
| Sept. 20, 21, Oct. 3, 4, 8, 9, 29, 31, Nov. 15, 21 - | } 14,170 | Mean of 20 | 14,002 |
| Nov. 22, 23, Dec. 12. 1813, Jan. 9, 11, 15, July 11, 25, 27, 28 - - | } 13,803 | Mean of 30 | 13,936 |
| July 29, 30, Aug. 2, 4, 7, 9, 10, 12, 13, 15 - - | } 14,223 | Mean of 40 | 14,008 |
| Aug. 17, 18, 19, 23, 24, 30, 31, Sept. 5, 6, 13 - | } 14,169 | Mean of 50 | 14,040 |

Result very exact.

## α *Pegasi.*

| | | | |
|---|---|---|---|
| 1812, Oct. 1, 2, 3, 4, 5, 8, 10, 11, 12, 16 - - | } 51,330 | Mean of 10 | 51,330 |
| Oct. 17, 21, 28, Nov. 3, 7, 9, 19, Dec. 5, 7, 12 - | } 52,060 | Mean of 20 | 51,695 |

This star is reserved for future examination.

*Regulus.*

| | | | |
|---|---|---|---|
| 1812, June 12, 13, 15, 19, 20, 22, 23, July 6, 7, 8   - | 23,331 | Mean of 10 | 23,331 |
| July 9, 14, 15, 18, 21, 23, 28, Oct. 1, 2, 3   -   - | 23,205 | Mean of 20 | 23,268 |
| Oct. 4, 6, 12, 14, 15, 19, 20, 23, 27, 28   -   - | 22,543 | Mean of 30 | 23,026 |
| Nov. 5. 1813, Mar. 7, 10, 12, 13, 17, 18, 22, 23, 26   - | 22,236 | Mean of 40 | 22,829 |
| Mar. 29, 31, Apr. 1, 2, 3, 4, 7, 8, 9, 11   -   - | 22,148 | Mean of 50 | 22,692 |
| Apr. 12, 13, 14, 20, 26, May 24, 28, 31, June 2, 7   - | 22,665 | Mean of 60 | 22,688 |
| June 8, 11. July 6, 7, 9   - | 22,576 | Mean of 65 | 22,679 |

Not to be relied on with the same confidence as some others, as one of the above series differs a second from the mean; the result may be erroneous a quarter of a second, but, I think, not much more.

## α *Ophiuchi.*

| | | | |
|---|---|---|---|
| 1812, June 28, 29, July 11, 14, 21, 22, 26, 28, 30, Aug. 3 | } 39,126 | Mean of 10 | 39,126 |
| Aug. 19, 20, Sept. 15, 16, 19, 20, 21, Oct. 3, 8, 9   - | } 39,949 | Mean of 20 | 39,537 |
| Oct. 28, 31, Nov. 7, 15, 19, 21, 22, 23, Dec. 6, 8   - | } 40,358 | Mean of 30 | 39,811 |
| Dec. 29.   1813, Jan. 7, 9, 15, June 24, 25, 26, 27, July 5, 6 | } 39,215 | Mean of 40 | 39,662 |
| July 9, 10, 11, 12, 13, 16, 17, 18, 19, 22   -   - | } 38,849 | Mean of 50 | 39,500 |
| July 23, 24, 25, 26, 27, 28, 29, Aug. 2, 4, 5   -   - | } 38,523 | Mean of 60 | 39,339 |
| Aug. 7, 9, 10, 12, 13, 15, 17, 19, 20, 24   -   - | } 38,115 | Mean of 70 | 39,163 |

Some discordances in the above observations, which I can‐
not explain, render the result doubtful, and I reserve this star
for future examination.

### α *Aquilæ.*

| | | | |
|---|---|---|---|
| 1812, July 26, 30, Aug. 1, 3, 6, 9, 12, 14, 18, 19   - | } 58,133 | Mean of 10 | 58,133 |
| Sept. 15, 16, 18, 19, 20, 21, Oct. 2, 3, 4, 7   -  - | } 59,381 | Mean of 20 | 58,757 |
| Oct. 8, 10, 13, 15, 16, 19, 21, 23, 24, 27   -  - | } 58,963 | Mean of 30 | 58,826 |
| Oct. 28, 29, Nov. 2, 3, 6, 7, 15, 19, 21, 22   -  - | } 59,705 | Mean of 40 | 59,045 |
| Nov. 23, 24, Dec. 8, 9, 10. 1813, Jan. 21, Feb. 28, Mar. 5, 6, 7   -  - | } 59,626 | Mean of 50 | 59,162 |
| Mar. 12, 20, 26, 27, Apr. 1, 3, July 11, 12, 16, 17   - | } 58,014 | Mean of 60 | 58,970 |
| July 19, 21, 22, 25, 26, 27, 28, 29, 30, Aug. 1   - | } 58,280 | Mean of 70 | 58,872 |
| Aug. 2, 3, 4, 7, 10, 11, 12, 13, 15, 16   -  - | } 58,280 | Mean of 80 | 58,799 |

### *Procyon.*

| | | | |
|---|---|---|---|
| 1812, June 12, 19, July 25, Sept. 15, 16, 17, 18, 19, 20. 1813, Feb. 24   -  - | } 13,999 | Mean of 10 | 13,999 |
| Mar. 3, 6, 8, 17, 22, 29, Apr. 2, 4, 9, 10   -  - | } 14,221 | Mean of 20 | 14,110 |
| Apr. 12, 14, 20, June 2, 7, 8, July 29, Aug. 11, 14, 16 | } 14,795 | Mean of 30 | 14,338 |
| Aug. 17, 23, 24, Sept. 2, 6, 7, 10, 12, 13, 14   - | } 14,426 | Mean of 40 | 14,360 |

Probably exact to a quarter of a second.

## α *Orionis.*

| | | | |
|---|---|---|---|
| 1812, July 17, 22, 25, Aug. 5, 13, 14, 16, 17, 19. 1813, Jan. 2 - - | 16,044″ | Mean of 10 | 16,044″ |
| Jan. 10, 11, 13, 16, 22, 25, 27, 28, Mar. 2, 11 - | 15,486 | Mean of 20 | 15,765 |
| Mar. 18, 22, Apr. 3, 4, 9, 10, 11, 12, 13, 14 - | 16,380 | Mean of 30 | 15,970 |
| Apr. 17, 18, 19, 20, May 28, July 8, 16, 17, 28, 29 - | 15,849 | Mean of 40 | 15,940 |
| Aug. 6, 8, 11, 13, 18, 19, 20, 23, 24, Sept. 1 - | 14,856 | Mean of 50 | 15,723 |

From the discordance of the last series, I consider this result as doubtful.

## α *Serpentis.*

| | | | |
|---|---|---|---|
| 1812, June 12, 13, 17, 19, 22, 23, 28, 30, July 2, 4 - | 38,187″ | Mean of 10 | 38,187″ |
| July 6, 8, 9, 15, 18, 20, 21, 22, 26, 28 - - | 39,508 | Mean of 20 | 38,847 |
| Aug. 14, 15, 17, 18, 19, Sept. 15, 16, 18, 21, Oct. 3 - | 39,700 | Mean of 30 | 39,132 |
| Oct. 4, 13, 26, Dec. 6, 7, 12. 1813, Jan. 8, 9, 15, June 7 | 39,282 | Mean of 40 | 39,169 |
| June 8, 10, 13, 16, 18, 21, 22, 24, 25, 27 - - | 39,244 | Mean of 50 | 39,184 |
| July 5, 10, 11, 12, 16, 17, 18, 19, 20, 22 - - | 39,670 | Mean of 60 | 39,265 |
| July 23, 26, 27, 28, 29, 30, Aug. 2, 7, 12, 15 - | 39,240 | Mean of 70 | 39,260 |

Result very exact.

## Polaris.

| Mean Day of the Month. | Position of the Telescope on the Instrument. | Number of Observations above the Pole. | Number of Observations below the Pole. | Total Number of Observations. | N. P. D. Jan. 1, 1813. | | |
|---|---|---|---|---|---|---|---|
| 1812. | | | | | ° ′ ″ | | ″ |
| June 15 | 0 | 3 | 8 | 11 | 1 41 21,79 | Mean of 11 | 21,79 |
| 29 | 30 | 4 | 3 | 7 | 22,06 | Mean of 18 | 21,89 |
| July 7 | 10 | 4 | 4 | 8 | 22,49 | Mean of 26 | 22,08 |
| 18 | 20 | 6 | 5 | 11 | 22,29 | Mean of 37 | 22,14 |
| Oct. 18 | 0 | 10 | 9 | 19 | 21,69 | Mean of 56 | 21,99 |
| Nov. 10 | 10 | 10 | 6 | 16 | 21,71 | Mean of 72 | 21,95 |
| Dec. 8 | 20 | 10 | 7 | 17 | 21,32 | Mean of 89 | 21,83 |
| 1813. | | | | | | | |
| Apr. 1 | 30 | 19 | 17 | 36 | 21,44 | Mean of 125 | 21,72 |
| June 10 | 0 | 19 | 23 | 42 | 21,70 | Mean of 167 | 21,72 |

The mean of more than 200 observations of this star is 1° 41′ 21″,75. The above 167 were selected in preference; the result, however, is the same.

Notwithstanding the great number of observations of this star, there are discordances which render the result doubtful to 0″,25. If the observations with four microscopes, previous to Oct. 1812, be rejected, the mean result with six microscopes will be 1° 41′ 21″,6, which I prefer to the above.

The following Table shews the State of the Standard Catalogue
at this present Time, Sept. 1813.*

N. P. D. of Stars for the beginning of the Year 1813.

| | Names of Stars. | No. of Obs. | N. P. D. Jan. 1813. | | | Difference of former Catalogue. | |
|---|---|---|---|---|---|---|---|
| | | | ° | ′ | ″ | | |
| 1 | Polaris | 200 | 1 | 41 | 21,75 | + 0,02 | |
| 2 | β Urs. min. | 90 | 15 | 4 | 48,95 | 0,00 | |
| 3 | β Cephei | 40 | 20 | 5 | 30,70 | + 0,40 | |
| 4 | α Urs. maj. | 60 | 27 | 14 | 31,46 | — 0,04 | |
| 5 | α Cephei | 40 | 28 | 12 | 12,47 | + 0,12 | |
| 6 | α Cassiop. | 40 | 34 | 29 | 22,73 | — 0,10 | |
| 7 | γ Urs. maj. | 50 | 35 | 15 | 55,27 | + 0,17 | |
| 8 | γ Draconis | 90 | 38 | 29 | 3,65 | — 0,08 | |
| 9 | η Urs. maj. | 80 | 39 | 44 | 57,88 | + 0,08 | |
| 10 | α Persei | 40 | 40 | 48 | 52,67 | + 0,30 | |
| 11 | Capella | 80 | 44 | 12 | 20,47 | — 0 49 | |
| 12 | α Cygni | 800 | 45 | 22 | 56,92 | = 0,27 | |
| 13 | α Lyræ | 100 | 51 | 23 | 0,43 | — 0,29 | |
| 14 | Castor | 30 | 57 | 42 | 46,73 | + 0,16 | |
| 15 | Pollux | 40 | 61 | 31 | 56,34 | — 0,23 | |
| 16 | β Tauri | 50 | 61 | 34 | 43,66 | + 0,15 | |
| 17 | α Androm. | 35 | 61 | 56 | 29,61 | | The same as in former Catalogue, |
| 18 | α Cor. Bor. | 90 | 62 | 38 | 55,43 | — 0,27 | and probably true to 0″,5 or less. |
| 19 | α Arietis | 50 | 67 | 25 | 36,49 | — 0,27 | |
| 20 | Arcturus | 80 | 69 | 50 | 19,08 | + 0,04 | |
| 21 | Aldebaran | 56 | 73 | 52 | 35,36 | + 0,18 | |
| 22 | β Leonis | 20 | 74 | 22 | 57,31 | + 0,07 | |
| 23 | α Herculis | 50 | 75 | 23 | 14,04 | + 0,07 | |
| 24 | α Pegasi | 20 | 75 | 47 | 51,70 | + 0,07 | |
| 25 | Regulus | 50 | 77 | 7 | 22,69 | — 0,25 | |
| 26 | α Ophiuchi | 70 | 77 | 17 | 39,16 | — 0,50 | Doubtful to 0″,5. |
| 27 | α Aquilæ | 100 | 81 | 36 | 58,66 | — 0,22 | Doubtful. |
| 28 | α Orionis | 30 | 82 | 38 | 15,72 | — 0,24 | Doubtful to 0″,5. |
| 29 | α Serpentis | 70 | 82 | 58 | 39,26 | + 0,39 | |
| 30 | Procyon | 40 | 84 | 18 | 14,36 | — 0,36 | |

‡ The N. P. D. of Procyon in the former Catalogue was 15″,03; this was from a
mistake of 1″,0 committed in adding the annual variation, it should have been 14″,03.

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* Though the Observations were given to the Society, as by the date of the paper,
yet, by the permission of the President and Council, they were extended till the time
that they went to the press.

### Remarks on the above Observations.

α Lyræ and α Aquilæ having been supposed subject to a
sensible parallax, I have, as I mentioned before, reserved them
for future examination. The observations which I have already
made on these stars, and particularly on α Aquilæ, are not
incompatible with this supposition, though I cannot at present
venture to decide whether the small discordances I have met
with are to be attributed to any regular cause, or are only
accidental.

Whenever I speak of the degree of exactness to which any
result may be depended upon, I allude only to the mechanical
measure given by the instrument. I have every reason to
believe, that if two fixed and well defined points could be
placed in the plane of the meridian, I could, in a very short
time, measure their angular distance to within a tenth of a
second; but astronomers must be well aware that the stars
are not presented to us in this simple form, and that the sources
from which small errors may arise, either in the observations
themselves or subsequent computation, are so very numerous,
that anomalies will occur even to the most careful observer,
which he will in vain endeavour to explain. With respect to
the parallax of α Lyræ, I might observe that it is a star so
badly defined, and so little adapted for exact observation, that
a parallax of half a second would not be easy to determine
even with the Greenwich circle.

α Aquilæ is in some respects a better star for observation,
but only half its actual parallax would be sensible in decli-
nation.

There are several other stars much better adapted for this investigation, even should their distance be supposed more than double, such are Polaris, η Ursæ maj. α Cygni, β Urs. min. and γ Draconis; now in these I have not hitherto found any sensible parallax; occasional discordance has frequently suggested some slight hopes, but these have always been disappointed by continuing the observations. It is, however, useless now to anticipate this subject farther.

Those stars which are in the general Catalogue, but which do not form part of the standard Catalogue, I presume to be exact to the nearest second.

I have not included any star in the standard Catalogue south of the equator, on account of the uncertainty of refraction.