for a like period of about thirty years, and down to the present
time they have remained absolutely at rest so far as one can tell
from full and careful sets of measures by the best double star
observers. So far as I know, there is no other instance of this
kind known in the heavens. There is no lack of examples of
double stars where the motion as shown by the various measures
is apparently peculiar, and possibly inconsistent with the theory
of the mutual attraction of the observed bodies; and various specu-
lations have been advanced to explain the so-called irregular vari-
able motions. A dark or invisible star is usually interposed to
account for the observed movements. With all the latitude afforded
by the unavoidable errors of observation, which very often appear
to assume a systematic form, it is not difficult in any instance to
suggest an undiscovered disturbing body which, according to the
terms of the proposed hypothesis, shall appear to more or less
perfectly account for the observations, but in most instances the
disturbing body is more likely to be finally discovered at the
smaller end of the telescope than elsewhere.

With respect to this star, I have only to add that it seems to
furnish an example, perhaps the only one, of so peculiar motion
that the explanation is not readily suggested by the observations
themselves. The steady change in the position of the smaller
star for about forty years, and the subsequent arrest of its
motion, which has continued down to the present time, are both
apparently established by unimpeachable observations by the best
observers. Of course any attempted explanation at this time
would be premature, at the best only speculation, and would have
no value, and presumably no interest. The usual dark body will
readily suggest itself, and it is easy to imagine one of these stars
having an invisible companion, the two moving in a very eccentric
orbit, the plane of which is nearly in the line of sight, and to
select a period and direction of motion for the hypothetical pair
such as will explain approximately not only the motion, but the
absence of motion, shown by the observations of the invisible
components; and when this is presented with the usual refinements
of computation, doubtless for the time being a plausible case
could be made out. When the relative motion has been resumed,
and a decided change has taken place, there may be no difficulty
in determining with substantial accuracy the general form of the
orbit, and explaining the apparent anomalous relative move-
ment of these stars, without assuming the existence of any third
member of the system.

On a New Binary of Short Period in the Constellation Dorado

While sweeping over some of the brighter stars in the con-
stellation Dorado, January 14, I recognised the duplicity of a
yellow star of the 6½ magnitude; under a power of 520 the
components were just well separated, and in brightness rated at
March 1897.  

*Short Period in Dorado.*

7·8 and 8. This star has proved to be No. 1583 in the Catalogue of Lacaille, by whom it was first observed. In the Argentine General Catalogue it is numbered 5325, the companion 5326. The position of the principal star referred to 1900° is

\[ \alpha = 4^h 38^m 39^s.3; \delta = -59^\circ 8' 32''8. \]

While sweeping with the 20-foot reflector at the Cape of Good Hope, 1834 December 3, Sir John Herschel discovered that the star is a fine double. His observations of it are—

(1) **With the 20-foot Reflector.**

\[
\begin{array}{ccc}
\text{t} & \theta_0 & \rho_0 \\
1834'920 & 260'8* & 3' \pm \text{very fine.} \\
1836'030 & 261'5* & 3' \pm \text{very fine, but ill-defined.} \\
1835'475 & 261'1 & 3' \pm 2n \text{ Herschel.}
\end{array}
\]

(2) **With the 7-inch Equatorial.**

\[
\begin{array}{ccc}
\text{t} & \theta_0 & \rho_0 \\
1835'925 & 82'5 & 3'25 \\
1836'884 & 80'0 & 4'20 \text{glimmering, but perfectly steady.} \\
1836'404 & 81'2 & 3'72 2n \text{ Herschel.}
\end{array}
\]

The next determinations of the places of the two components are those made at Cordoba by Gould, who gives the following positions:—

<table>
<thead>
<tr>
<th>Mag.</th>
<th>Mean Epoch</th>
<th>( \alpha )</th>
<th>( \delta )</th>
<th>No. of Obs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dorado 5325</td>
<td>7 74 82</td>
<td>4 38 14'71</td>
<td>-59 11 24'5</td>
<td>6-6</td>
</tr>
<tr>
<td>Dorado 5326</td>
<td>7 73'94</td>
<td>4 38 14'99</td>
<td>-59 11 23'9</td>
<td>1-1 comes sq.</td>
</tr>
<tr>
<td>74'99</td>
<td>15'11</td>
<td>23'5</td>
<td>5-5</td>
<td></td>
</tr>
</tbody>
</table>

Reduced to polar coordinates these differences in R.A. and Decl. give

\[
\begin{array}{ccc}
\text{t} & \theta_0 & \rho_0 \\
1874'38 & 74'4 & 2'23 & 2n \\
1874'90 & 71'5 & 3'16 & 5n
\end{array}
\]

where the mean dates have been used.

If we assign to each result weight proportional to the number of nights we shall obtain

\[
\begin{array}{ccc}
\text{t} & \theta_0 & \rho_0 \\
1874'82 & 72'0 & 3'60 & 6n \text{ Gould.}
\end{array}
\]

While the errors of positions depending on the Meridian Circle are not so small as those of good micrometer measures, there is no doubt that this place fairly represents the position of the companion at the epoch 1874-82.

* These angles should be diminished by 180°.
Dr. See, On a New Binary.

Apparently the only other previous measures of this system are those made by Russell and Hargrave at Sydney in 1879. Their settings of the micrometer gave

\[\begin{array}{cccc}
\text{t} & \theta_0 & \rho_0 & \\
1879.096 & 79^\circ 1 & 3^\prime 46 & \text{Russell.} \\
1879.096 & 80^\circ 6 & 3^\prime 32 & \text{Hargrave.} \\
1879.096 & 79^\circ 3 & 3^\prime 39 & 2^\circ \\
\end{array}\]

Our measures with the 24-inch Clark refractor are as follows:—

\[\begin{array}{cccc}
\text{t} & \theta_0 & \rho_0 & \\
1897.036 & 265^\circ 1 & 0^\prime 87 & \\
1897.068 & 267^\circ 0 & 0^\prime 85 & \\
1897.071 & 263^\circ 1 & 1^\prime 03 & \\
1897.058 & 265^\circ 1 & 0^\prime 92 & \text{See.} \\
1897.068 & 257^\circ 7 & \_ & \\
1897.071 & 261^\circ 3 & 1^\prime 0 \pm & \\
1897.070 & 259^\circ 5 & 1^\prime 0 \pm & 2^\circ \text{Cogshall.} \\
\end{array}\]

On comparing this place with that given by Gould in 1874 we see that a great change has taken place in the last twenty-two years; indeed, the change since 1879 has been almost as noticeable. It is now clear that when Russell made his measure eighteen years ago the companion was in almost exactly the same place observed by Herschel in 1835, and hence the period is

\[
\begin{array}{ccc}
270^\circ & 1897 & 90^\circ \\
\hline
5^\circ & 1879 & 1835 \\
\hline
0^\circ & 1874 & \\
\end{array}
\]

* Difficult on account of low altitude.
March 1897.  Mr. Stone, Magnitude of Nova Aurigae.

approximately forty-four years. Since it is certain that we may rely on the general accuracy of Gould's place for 1874, it is evident that the motion is direct. From the present position of the companion it is clear that the previous observations relate to the apastron part of the apparent orbit. We may also infer that the eccentricity will lie between ±0.6 and ±0.7, and that the orbit is considerably inclined about a line of nodes near 85°. The observations do not suffice to fix the other elements, but we may conclude that the apparent orbit will not be very different from that indicated in the figure. The approximate period is obtained by comparing the observations of Herschel and Russell; the constant of areas by comparing the places of Gould and Russell; and hence it is possible to fix the area included between 1879 and 1897. Although the slope of the included arc cannot yet be determined, the approximate path here sketched will be useful to observers.

The rapid motion of this system, which has already carried the companion through one and a half revolutions, combined with the wide angular separation of the components and the high eccentricity of the orbit, renders it an object of extraordinary interest; and hence it merits the most careful attention of observers in the southern hemisphere.

Lowell Observatory, City of Mexico:
1897 January 28.


In the Monthly Notices for 1892 April estimations of the magnitude of Nova Aurigae from 1892 February 3 to March 31 are given. In that interval the star was observed to change from mag. 4.4 to 14.0, the limit of visibility of the Radcliffe instrument. A chart is also given of the comparison stars with their adopted magnitudes.

Subsequent notes in the Monthly Notices for 1892 Nov., 1893 Jan., and 1895 Jan. reported that estimations had been made at intervals during 1892, 1893, and 1894; but on the nights, whose dates are there given, the star remained at about 9.7 on the adopted scale.

Since these printed reports examinations have been made on 1895 January 23, 30; September 26; December 7, when no change from 9.7 was detected.

But on 1897 March 10 another examination at once revealed a considerable diminution in brightness; and comparisons made independently by two observers, Mr. Robinson and Mr. McClellan, give the magnitude of the Nova as 11.3 on the scale previously adopted. Mr. McClellan also remarked that there