In the case of most stars the receiving mirrors can be placed the full length of the girder apart without decreasing the visibility of the fringes, which are extremely sharp and distinct, even on a night of seeing 2 on a scale of 10. With α Orionis the fringes were clearly visible when these mirrors were 6 feet apart. At 8 feet separation the visibility was decidedly lower, and at 10 feet the fringes had disappeared. Merrill had previously observed the decreased visibility at 8 feet for several position-angles, showing that the effect is not due to duplicity of α Orionis. At 10 feet, to make certain that the adjustments were perfect, the telescope was turned to Procyon and γ Orionis, both of which showed perfectly sharp fringes, whereas α Orionis showed none. The reappearance of the fringes at greater distances was not looked for, but it will be observed as soon as the apparatus for moving and adjusting the receiving mirrors can be improved. At present it takes Pease from half an hour to an hour to find the fringes after the mirrors have been moved. The final adjustment is made by means of optical compensating apparatus at the eye-end.

We have not yet determined the mean wave-length of the light of α Orionis, but a special quartz device is now being made for this purpose. Assuming zero visibility to occur when the receiving mirrors are 10 feet apart, and a mean wave-length of λ5500, the angular diameter comes out c\(^{-0.45}\). This is not corrected, of course, for any effect of decreased intensity toward the limb of the star. Using the mean of three parallax determinations, two trigonometric and one by Adams, we obtain a first rough value of 5,40,000,000 km. for the linear diameter. This, of course, is very uncertain. But the angular diameter, which is in such close agreement with your theoretical value, is probably correct within about 10 per cent.

Pease will repeat these measures and attack other stars as soon as the interferometer has been perfected. During the past week, in spite of much cloudy weather, he observed α Ceti, α Tauri, and β Geminorum with the mirrors set at 13 feet apart. All of these stars showed definite decrease of visibility when compared with Procyon, which showed none at the same separation of the mirrors.

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Hind's New Star of 1848 (Nova Ophiuchi No. 2).
By E. E. Barnard. (Plate 6.)

No one will question the fact that there must be hundreds of thousands of old novae in the sky to-day which will be within the reach of modern instruments. Indeed, I believe I have accidentally come across some of these in my visual observations. It is unfortunate that we cannot identify with certainty the older novae which were observed before the era of accurate observation, such as those of 1572 and 1670 (though Hind believed he had
located the latter star*), and others that appeared even earlier, so that they might be observed with our present means of research. Such observations would undoubtedly be of value in understanding something of their original condition. Of course there is also P Cygni, which lays some claim to having been a nova in 1600.

With the exception of P Cygni, and possibly the star of 1670, the oldest of the novae that we can identify with certainty seems to be the one discovered by Hind in 1848. All the evidence shows that it was a true nova. Accurate observations of its position were made when it was bright, so that there is no question as to its identity to-day. It must have returned to its original condition more than half a century ago, if it at all followed the general custom of these stars. I have taken this star up in my observations of the novae, and have identified it with certainty. On account of the considerable lapse of time since its outburst (more than 72 years), it will be more nearly in its original condition than any other nova that we can observe. I have not seen any observations of it since the ones mentioned, though there doubtless are such observations.

The star was found by Hind at Mr. Bishop's observatory, in London, on 1848 April 27, in the constellation of Ophiuchus, and was of the 4th or 5th magnitude. He described it as being remarkably vivid in the telescope. To the naked eye it was equal to ν Serpentis. Hind was confident that no star was present at this place on April 5.

The star was observed by Bond in America (M.N., 9, 18, 1848), who described it as "a brilliant red, not surpassed in intensity by any other star. With power 1500 there is no indication of a planetary disc. It was of the 6th magnitude on May 25th, and at our last observation had diminished to the 7th ... and with one of these, [stars] of 15th magnitude, numerous observations of position and distance have been made at different times. The mean result is

1848'52 Position 212° 8' Distance 116'1.'

This small star (C) was called 15th magnitude by Bond. The proximity of the brighter nova doubtless caused the smaller star to appear much fainter than it really was, for it is now about 12'5 magnitude.

In A.N., 27, 191, Hind described the nova as being reddish in the telescope, and on p. 366 he also says, "The new star of Ophiuchus was of magnitude 7 on Aug. 22 [1848] and still orange-coloured. I did not consider it brighter than magnitude 8 at the end of July." From Hind's description of the colour of the star it is probable that it was some time beyond maximum when he found it. It may, therefore, have been considerably brighter than the 4th or 5th magnitude at its greatest brightness,

* See A.N., 199, 1, for a recent investigation of this star.
for the reddish colour seems to develop in these stars only when their light has diminished somewhat. During its brighter stages the star was observed at Bonn. It is B.D. $-12^\circ 46'33''$. Following is a partial list of references to observations of the colour, brightness, and position of the nova: A.N., 27, 191, 210, 237, and 366, 1848; M.N., 8, 146, 155, and 9, 18. It was suspected by Hind and Graham to have a planetary disc, but this seems to have been disproved by Bond. But Bond's observations were later than Hind's, and from this fact may have no meaning. We find that these bodies do sometimes have a planetary disc.

I have recently examined this nova and identified it with certainty, both from its position and from Bond's comparisons with the small star nearly 2' south of it. In these observations the nova has not seemed to be as well defined as Bond's comparison star, and the focus is probably a little outside of the normal. It is white, as is also the comparison star. I have remeasured the nova with Bond's star as well as with several other stars in the field. Their positions are shown in the accompanying diagram.

**Position of the Nova.**

The nova was indirectly compared with Cambridge (U.S.), A.G.C., 5822, several step stars being used.

$$
\begin{align*}
1919 \text{ June 5} & \quad \Delta a = 21''88 \quad \Delta \delta + 7'6''-5 \\
7 & \quad -21''92 \quad +7'6''0
\end{align*}
$$

from which the following position results:

$$
1919^o \quad a 16^h 54^m 57''70 \quad \delta -12^\circ 46'12''0.
$$

Following are the measures of the comparison stars. Bond's "15th magnitude star" is identified as C on the present diagram.

**Measures of the Comparison Stars.**

<table>
<thead>
<tr>
<th>Nova and C.</th>
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<tbody>
<tr>
<td>1919'331</td>
<td>May 1</td>
<td>212'07</td>
</tr>
<tr>
<td>'344</td>
<td>6</td>
<td>211'99</td>
</tr>
<tr>
<td>'350</td>
<td>8</td>
<td>211'61</td>
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<td></td>
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<table>
<thead>
<tr>
<th>Nova and D.</th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1919'350</td>
<td>May 8</td>
<td>190'27</td>
</tr>
<tr>
<td>'432</td>
<td>June 7</td>
<td>190'54</td>
</tr>
<tr>
<td>1919'391</td>
<td></td>
<td>190'40</td>
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<tr>
<td></td>
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