Photosynthesis

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Psyche Inspired serves as a reminder that the arts and sciences are not at odds with one another. It reminds us that the incremental acquisition of understanding through observation can be shared and expressed creatively. These are the fundamental concepts which shaped this project, which began with research about the asteroid’s scientific history and to about a dozen scientific articles from the second half of the 20th century describing Psyche in terms of photometric analyses. Thus, Photosynthesis is collection of photographs and scientific articles combined in an attempt to explore similarities between photography and an earlier period of Psyche research. The Psyche mission and the photographs in this project both serve a purpose of acquiring information that may lead to a better understanding and appreciation of our own planet. Trees, which also contain important information in their cores, are the subject of these photographs. Much like the Psyche mission, light brings them to life.
THE AND ROTATION PERIOD

are shown in Fig. 1. So noticeable variation during the rotation period in 1978.
The rotational axis of Psyche is along the line of sight, i.e., the asteroid

<table>
<thead>
<tr>
<th>Date</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 5-6, 1978</td>
<td>λ = 222°</td>
</tr>
</tbody>
</table>

astroid 16 Psyche.

as in 1974 (Taylor et al. 1976) the
letters by about 90° as compared with the
1, i.e., the aspect angle was near 90° and
side of the light curve δ = 0.02. In the
Under the assumption that in the 1970s oppo-
close-on, the polar coordinates λ = 222° and
certainty of about 10°.

Curves of Psyche.

<table>
<thead>
<tr>
<th>T</th>
<th>H (1)</th>
<th>Amplitude (1,2)</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.11</td>
<td>0.02</td>
<td>van Houten-Groeneveld and van Houten 1976</td>
</tr>
<tr>
<td>2</td>
<td>0.20</td>
<td>0.14</td>
<td>Taylor et al. 1976</td>
</tr>
<tr>
<td>3</td>
<td>0.23</td>
<td>0.12</td>
<td>Nagel et al. 1976</td>
</tr>
<tr>
<td>4</td>
<td>0.03</td>
<td>0.01</td>
<td>Longton et al. 1980</td>
</tr>
<tr>
<td>5</td>
<td>0.10</td>
<td>0.02</td>
<td>Gipps et al. 1982</td>
</tr>
</tbody>
</table>

the light curves obtained in 1979 it turned
of 16 Psyche, found by van Houten-Groeneveld
upped in the 1970s. The best fit for the
of Psyche is found to be $\phi = 1.01 \pm 0.01$
viously obtained. It is defined most pre-
1979, since the light curve on Aug. 1st,
the same longitude and phase angle of the
1974 (Taylor et al. 1976, see Table 3),
results for the spin parameters of 16 Psyche
Xing-hai and Yang Xiyi 1982) on the basis
(1962, 1956) observations:
$\omega_0 = 4.0 \pm 0.5°$; $\delta = 5°$. 
observed magnitude is the difference in.

We then have

\[ m_P = 529.946 - 0.111 = 529.835, \quad m = 529.946 \]

\[ m_P = 438.147 - 0.068 = 438.079, \quad m = 438.147 \]

\[ m_P = 990.828 - 0.151 = 990.677, \quad m = 990.828 \]

with retrograde rotation:

\[ m_P = 529.946 + 0.111 = 529.997, \quad m = 529.946 \]

\[ m_P = 438.147 + 0.068 = 438.215, \quad m = 438.147 \]

\[ m_P = 990.828 + 0.151 = 990.979, \quad m = 990.828 \]

Since the uncertainties are intervals of 0.0005, they are derived at this accuracy respectively to 0.0006.

For the light curve of 16 Psyche, the difference are uncertain by 0.000022 and the interval of the observations gives a satisfactory agreement as was found before Paper I.

As noted No. 16 was observed on December 26th (Fig. 16). On the first night two cycles were noted, was found. As usual, two maxima and two minima. The secondary maximum and minimum different.

The primary maximum is relatively broad, and the secondary maximum and minimum are given in four magnitudes of the two nights, the agreement a plan.
The light curve extrema of 16 Psyche (corrected for retardation). The following table shows the extrema and their corresponding Julian Day numbers (JD) with uncertainties:

<table>
<thead>
<tr>
<th>λ (°) (1950)</th>
<th>g (°) (1950)</th>
<th>Extremum</th>
<th>JD(c) ± d</th>
</tr>
</thead>
<tbody>
<tr>
<td>37.7</td>
<td>2.0</td>
<td>M1</td>
<td>60.399 ± 0.003</td>
</tr>
<tr>
<td>309.6</td>
<td>1.5</td>
<td>M2</td>
<td>60.340 ± 0.003</td>
</tr>
<tr>
<td>305.6</td>
<td>1.4</td>
<td>M3</td>
<td>95.285 ± 0.002</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M1</td>
<td>95.308 ± 0.002</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M1</td>
<td>100.261 ± 0.003</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M1</td>
<td>100.202 ± 0.002</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M1</td>
<td>100.306 ± 0.010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M1</td>
<td>100.351 ± 0.002</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M1</td>
<td>100.376 ± 0.002</td>
</tr>
</tbody>
</table>

The diagram shows the dependence of magnitude and colour of 16 Psyche, with linear fits provided by least squares analysis. The following equations represent the fits:

- \[ m = 5.64 + 0.114 a - 0.009 a^2, \quad a \geq 7° \]
- \[ m = 6.02 + 0.027 a, \quad a \geq 7° \]
- \[ m = 0.72 + 0.0059 a; \]
- \[ m = 0.08 + 0.129 a - 0.007 a^2, \quad a \geq 8° \]
- \[ m = 0.04 + 0.035 a, \quad a \geq 8° \]
- \[ m = 0.74; \]
- \[ m = 0.36 + 0.003 a; \]