in the mass function for \( A \), giving the minimum total mass and the maximum value for \( \pi \). EDDINGTON'S curve then gives

\[
\pi = -5.0211; \ m_1 = 1.18 \ \odot; \ m_2 = 0.317 \ \odot; \ m_3 = 0.771 \ \odot; \ M_1 = 3.88; \ M_2 = 12; \ M_3 = 5.88,
\]

where for \( \xi \), the spectral type \( Ma \) has been assumed. (\( M \) referred to \( \pi = -5 \)).

The two limiting cases give practically the same mass for \( \xi \), and for \( B \). The parallaxes differ very little and are lower than the probable value for a physical member of the Hyades; they indicate therefore that the quantity a \( P^{-\frac{1}{3}} \) of the visual orbit, or the magnitudes for \( A \) and \( B \) are subject to revision unless the stars should deviate from EDDINGTON'S curve.

**Ephemeris** (equinox 1900).

<table>
<thead>
<tr>
<th>Year</th>
<th>( \alpha )</th>
<th>( \delta )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1930( \omega )</td>
<td>42( \frac{5}{10} )</td>
<td>09( \frac{3}{10} )</td>
</tr>
<tr>
<td>1931( \omega )</td>
<td>42( \frac{6}{10} )</td>
<td>09( \frac{7}{10} )</td>
</tr>
<tr>
<td>1932( \omega )</td>
<td>40( \frac{0}{10} )</td>
<td>10( \frac{1}{10} )</td>
</tr>
<tr>
<td>1933( \omega )</td>
<td>37( \frac{5}{10} )</td>
<td>10( \frac{9}{10} )</td>
</tr>
<tr>
<td>1934( \omega )</td>
<td>35( \frac{2}{10} )</td>
<td>11( \frac{0}{10} )</td>
</tr>
<tr>
<td>1935( \omega )</td>
<td>33( \frac{0}{10} )</td>
<td>11( \frac{2}{10} )</td>
</tr>
<tr>
<td>1936( \omega )</td>
<td>31( \frac{1}{10} )</td>
<td>11( \frac{6}{10} )</td>
</tr>
<tr>
<td>1937( \omega )</td>
<td>29( \frac{2}{10} )</td>
<td>12( \frac{0}{10} )</td>
</tr>
<tr>
<td>1938( \omega )</td>
<td>27( \frac{4}{10} )</td>
<td>12( \frac{2}{10} )</td>
</tr>
<tr>
<td>1939( \omega )</td>
<td>25( \frac{8}{10} )</td>
<td>12( \frac{8}{10} )</td>
</tr>
<tr>
<td>1940( \omega )</td>
<td>24( \frac{2}{10} )</td>
<td>13( \frac{1}{10} )</td>
</tr>
</tbody>
</table>

The correction for precession is \( \delta_0 - \delta_{1900} \approx \theta_0^{0.0052} (t - 1900) \).

Recently an orbit has been published by S. E. LAURITZEN in *A. N.*, 5676 (1929). His elements are quite different \( (P = 112\,\text{s}, \text{etc.}) \) from those derived here, but give large residuals for the observations in 1928–1930, viz: \( +6^{\circ}3, +45^{\prime}259; +6^{\circ}1, +45^{\prime}28 \) and \( +10^{\circ}05, +45^{\prime}20 \).

**Correction.** In *U. O. C. 81* FINSEN remarks that the hypothetical parallax given in *B. A. N.*, 100 is in error. The corrected parallax, masses and absolute magnitudes are \( \pi = -0.032; m_1 = 0.92 \ \odot; m_2 = 0.82 \ \odot; M_1 = 4.85; M_2 = 5.35 \), which values do not differ much from those according to the new orbit by FINSEN.

\( \xi \) Scorpii and \( \Sigma \) 1999 considered as a fivefold system, by G. P. Kuiper.

A comparison of the magnitudes and the spectra suggests the possibility that the neighbouring systems \( \Sigma \) 1998 = \( \xi \) Scorpii and \( \Sigma \) 1999 are physically connected. The trigonometrical parallax for \( \xi \) Scorpii is \( \theta_0^{0.036} \pm \theta_0^{0.004} \), the proper motion of the centre of gravity of \( A, B \) and \( C \) is \( \theta_0^{0.073} \) in \( 244^\circ \odot \) (Bosch). No parallax nor accurate proper motion is available for \( \Sigma \) 1999. As DEMBOWSKI has connected \( \Sigma \) 1998, \( \frac{3}{4} (A + B) \) and \( \Sigma \) 1999 \( A \) micrometrically on 7 nights (epoch 1866.55), it seemed best to repeat this now, as 64 years proper motion of \( \Sigma \) 1998 would be large enough to make a decision as to the character of the motion of \( \Sigma \) 1999 possible.

DEMOWSKI found

| 1866.55 | 169°16 | 280°78 | \( 7n \) |

My measures are

| 1930\( \omega \)424 | + \( 0^\prime \)2 | \( E \) | 168°90 | 279°95 | 2–3 *) |
| 1931\( \omega \)347 | + \( 0^\prime \)4 | \( W \) | 168°87 | 280°28 | 1–2 |
| 1932\( \omega \)343 | + \( 0^\prime \)1 | \( W \) | 168°92 | 280°15 | 2–3 |
| 1933\( \omega \)479 | + \( 0^\prime \)1 | \( E \) | 168°89 | 280°13 | 2 |
| 1934\( \omega \)490 | + \( 0^\prime \)1 | \( E \) | 168°85 | 280°21 | 3 |

\( 1930\omega \)451 | 168°89 | 280°14 | \( 5n \) |

*) Measured component \( A \) of \( \Sigma \) 1998: \( 168^\circ 84, 279^\circ 49 \); this has been reduced to \( \frac{3}{4} (A + B) \).
The columns give date, hour angle, position of
telecope, position angle, distance, direction of eyes,
definition (1 very bad, 5 excellent); power 238.
In order to eliminate the internal motions of
\( \Sigma 1998 \frac{1}{2} (A + B) \), \( C \) on the one side and of \( \Sigma 1999 \)
on the other I collected all the measures, adding my
own ones, viz:

\[
\begin{align*}
1930'464 & \quad 59^\circ 0 & \quad 7^\circ 50 & \quad 3n. \\
1930'456 & \quad 100^\circ 55 & \quad 11^\circ 28 & \quad 4n.
\end{align*}
\]

For the relative motion I obtained
\[
\begin{align*}
\Sigma 1998 & \quad \theta_t = 64^\circ 5 - 0^\circ 177 (t-1900) \\
& \quad \text{not corrected for precession.} \\
& \quad d_t = 7^\circ 28 + 0^\circ 0050 (t-1900)
\end{align*}
\]
\[
\begin{align*}
\Sigma 1999 & \quad \theta_t = 100^\circ 8 - 0^\circ 025 (t-1900) \\
& \quad \text{not corrected for precession.} \\
& \quad d_t = 11^\circ 06 + 0^\circ 0094 (t-1900)
\end{align*}
\]

We will first consider the parallaxes. The dynamical
parallax of \( \Sigma 1998 \) (according to AITKEN's orbit
and EDDINGTON's mass-luminosity curve) comes out
to be \( 0^\circ 040 \). The motion derived for \( \Sigma 1998 \) (computed according to the scheme
of RUSSELL, A.J. 930), and for \( \Sigma 1999 \) I find \( 0^\circ 034 \).
The spectroscopic parallax of \( \Sigma 1998 \) \( A \) is \( 0^\circ 044 \) and
of \( \Sigma 1998 \) \( C \) \( 0^\circ 036 \) (M. W. C. 193); the trigonometrical
one for \( \Sigma 1998 \) is \( 0^\circ 036 \pm 0^\circ 004 \). We may adopt \( 0^\circ 040 \)
for the parallax of \( \Sigma 1998 \). We find practically the
same for \( \Sigma 1999 \).

From EDDINGTON's curve the masses for \( \Sigma 1998 \)
\( A \), \( B \), and \( C \) are then \( 1'50 \), \( 1'39 \) and \( 0'95 \); for \( \Sigma 1999 \) I take the two masses equal.

Reducing my measures to the epoch of DEMBOWSKI's
by applying precession, the motion of \( \Sigma 1998 \) \( AB \)
and \( \Sigma 1999 \) \( A \), and the difference in differential refraction
Leiden—Gallarate, we get
\[
\begin{align*}
1866'55 & \quad 169'16 & \quad 280'78 & \quad 7n \quad \text{DEMBOWSKI} \\
1930'45 & \quad 169'13 & \quad 280'56 & \quad 5n \quad \text{KUIPER}
\end{align*}
\]

The relative motion appears to be \( 0'25 \) in 64 years
or \( 0'004 \) a year. This happens to be exactly the
amount to be expected as orbital motion in the large
system, but the difference hardly surpasses its mean
error.

Additional evidence of the physical relationship is
furnished by the recently published radial velocity of
\( \Sigma 1999 \) \( A \), viz. \( -33'3 \pm 1'4 \) km/sec (M. W. C. 387)
whereas the values found for \( \Sigma 1998 \) are \( -33'6 \pm 0'46 \)
(Lick) and \( -32'9 \) (Cape) for \( AB \) and \( -33'7 \pm 2'1 \)
(M. W.) for \( C \).

It may be concluded that the two \( \Sigma \) systems belong
together; the projected distance between them is 7000
astronomical units.

The space velocity of the system relative to the
sun is \( 34'6 \) km/sec towards \( \alpha = 72^\circ 8, \delta = +4^\circ 4 \).
The components \( X, Y, Z \) are \( +10^\circ 2, +32'9 \) and
\( +27 \) km/sec.