Errata for *Optical Design of Microscopes*
By George H. Seward

- On p. 2, Eq. (1.4) should be written as:
  \[ d \text{NA}_G = 0.63\lambda \]  
  (1.4)

- On p. 3, Eqs. (1.6) and (1.8) should be written as:
  \[ d \text{NA}_M = 1.22\lambda \]  
  (1.6)
  \[ z_R = \frac{\lambda}{\pi \text{NA}_M^2} \]  
  (1.8)

- On p 48, Eq. (5.39) has been replaced with the following:
  \[ \text{sinc}(x) = \frac{\sin(x)}{x} \]  
  (5.39)

- On p. 159, Fig. 16.1, “saccation radius at 6.8” has been changed to “saccation radius at 10.1.”

- On p. 160, Fig. 16.2, a legend has been added. The original plot was correct. The figure has been replaced with the following:

![Figure 16.2](https://example.com/figure16.2.png)
• On p. 161, in Fig. 16.3, the signs in the lower part of the figure were reversed. The correct figure appears below:

\[ g(x+a) \quad g(x) \quad g(x-a) \]

\[
\begin{align*}
PR & \quad PR & \quad PR \\
H & \quad \frac{1}{3} & \\
B_{\text{Dec}} & \quad B_{\text{Inc}} & \\
G_{\text{Dec}} & \quad G_{\text{Inc}} & \\
+ \left( \frac{g''(x)}{3} \right) a^2 & \quad - \left( \frac{g''(x)}{3} \right) a^2
\end{align*}
\]

Also, Eq. (16.6) has been replaced with the following:

\[
g(x+a) = g(x) - \frac{g'(x)}{1!} a + \frac{g''(x)}{2!} a^2
\]

\[
g(x-a) = g(x) + \frac{g'(x)}{1!} a + \frac{g''(x)}{2!} a^2.
\]  

(16.6)

• On p. 162, Eq. (16.8) should read as follows:

\[
g_a(x) = -\frac{1}{3} g''(x) a^2.
\]  

(16.8)

• On p. 164, the saccation radius 6.8 PR has been replaced with 10.1 PR. In Figures 16.5 and 16.6 a legend is added, and figures and captions are replaced as below. The original plots are correct.
Figure 16.5 Correlation of saccation transform to other transforms. Product of transforms of the lens and photoreceptor [Lens (2.5 mm)-PR] establishes a target for the saccation transform with a radius of 10.1 PR diameters.

Figure 16.6 Transformation by saccation of human vision. Each saccation radius has a specific pupil diameter.

- On p. 166, Eq. (16.18) has been changed to read:

\[ \text{CSF}(\omega) = 135 \left( \frac{G_{fp}(\omega)G_{fp}(\omega)}{G_{fp}(\omega_p)G_{fp}(\omega_p)} \right). \]  


- On p. 201, in Fig. 19.3, the bandwidth should be cited as 250 nm. The legend and caption are modified as below. The original plot is correct.
Figure 19.3 Axial coherence of a Gaussian 250-nm bandpass filter. Peak wavelength of transmission is 500 nm. Bandwidth is 250 nm. Axial coherence is 1 μm according to Eq. (19.22), or 1.27 according to Eq. (19.20).

- On p. 202, Eq. (19.28), the left-hand side should read $I_0$ as below:

$$I_0 = 2 \frac{\pi NA^2}{\lambda^2} P_0 = \frac{2}{A_G} P_0.$$  \hspace{1cm} (19.28)

- On p. 209, the diameter for surface STO has been corrected:

\textbf{Prescription 4.1} Spherical aberration of a spherical lens.
(M = 0, NA = 0.25, f = 20 mm, FOV = 0 deg)

<table>
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<th>Surf</th>
<th>Radius</th>
<th>Thickness</th>
<th>Glass</th>
<th>Diameter</th>
<th>$n_d$</th>
<th>$\nu_d$</th>
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<td>OBJ</td>
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<td>$\infty$</td>
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<td>-</td>
</tr>
<tr>
<td>1</td>
<td>$\infty$</td>
<td>20</td>
<td>10</td>
<td>-</td>
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<td>STO</td>
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<td>BK7</td>
<td>12</td>
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- On p. 238, the index entry for depth of focus should refer to p. 3.