

Errata sheet 5 as of: October 30, 2007

Unfortunately, there are a number of errors in the printed version of the Guide to Practice for Fractography. Some of these stemmed from software compatibility problems. Others were oversights on my part.

A corrected .pdf version of the Guide is available on line at:

<http://www.ceramics.nist.gov/>

Click on the right side for the **NIST Recommended Practice Guides**.

Additional printed books may be requested, *at no charge*, on this web site or by contacting me.

The enclosed errata sheet lists all that I have uncovered up to the date shown above. This errata sheet will be updated and posted on the same web site as necessary.

If you find something you believe is wrong, please let me know at:
george.quinn@nist.gov

I apologize for any confusion or inconvenience these errors may cause.

George Quinn

CORRECTIONS:

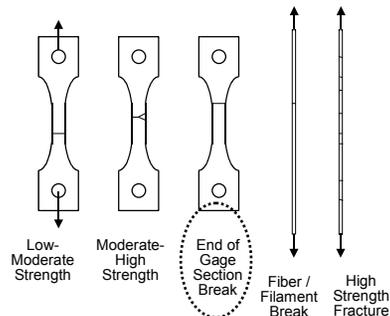
Pages 1-9 and 1-10 should be renumbered to 2-1 and 2-2.

Page 3-10, 3-11 A note should be added here to say that JPEG images may be saved with adjustable amounts of compression. They should be saved with little or no compression.

Page 3-43 Figure 3.38 The marker bar was cropped off the bottom figure. Both a and b were at the same magnification. The depth of the semi elliptical precrack (from the image bottom to the white arrow) was 250 μm.

Page 3-54 Figure 3.46 caption, change the word "comparator" to "**profilometer**"

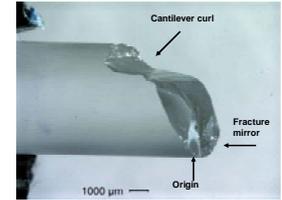
Page 4-13 Figure 4-8
The middle tensile specimen is labeled wrong.
It should be:
"End of Gage Section Break"



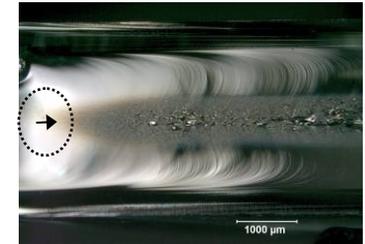
Page 4-30 Line 13, delete the words: "a later chapter"

Page 5-2 Figure 5.1

The words "Fracture mirror" and the black arrow with it point to the wrong location. Move them down 15 mm.



Page 5-13 There is no error, but a minor omission. At the end of the second paragraph, add: "Strong Wallner lines may also trigger mist formation in fracture mirrors."

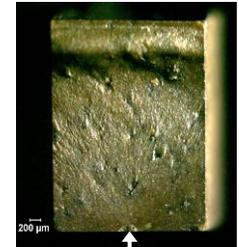


Page 5-28 Figure 5.19a

The black arrow should be moved down so that it marks the onset of the mist in the middle of the piece.

Page 5-33 Figure 5.21d

The Figure is missing the white arrow on the bottom that marks the semi elliptical surface crack.



It should appear as shown here.

Page 5-39 Figure 5.25 There is a checkerboard pattern superimposed on the image. This is an artifact of a process when the photo was scanned. I did not have access to an original photo.

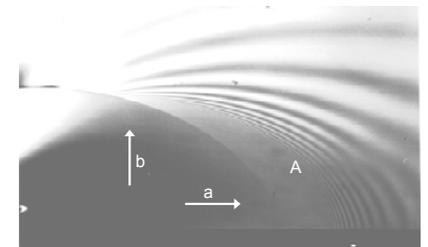
Page 5-41 Line 3 in the definition of Wallner line. Change the word "they" to "**it**"

Page 5-43 The definition of primary Wallner line is missing the word "**such**":

Primary Wallner line. A Wallner line formed by an elastic pulse generated by some portion of the crack front with a singularity in the specimen **such** as a discontinuity at the free surface or within the specimen, or with any localized stress field or elastic discontinuity.

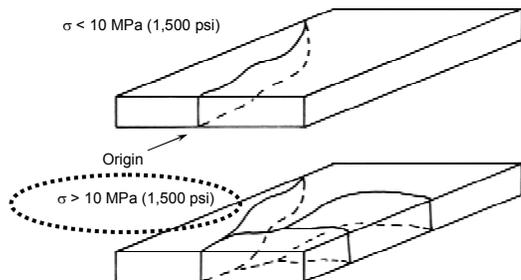
Page 5-54 Fig. 5.36c.

The bottom half of Fig. c was printed poorly in many books. It should look as shown here:



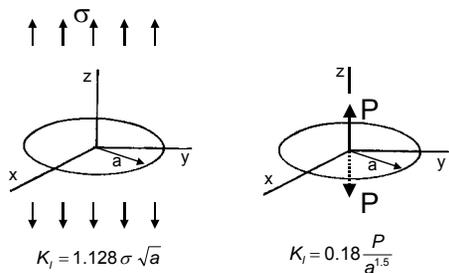
See opposite side.

- Page 5-58 Lines 6 + 7. Tsirk only studied "use chips." Therefore delete the clause: "either when the implements were made or"
- Page 5-58 Fig. 5-58 caption. Delete the word "Sierra". The figures do show scarps, but not the specific Sierra scarp type.
- Page 6-16 Figure 6.13 last line. Delete the word "incidental."
- Page 6-24 4th paragraph. Change Figure 4.17 to Figure 4.18
- Page 7-2 Fig. 7.1 The stress range for the bottom figure should show greater than: ">"



- Page 7-18 second paragraph, change Figure 7.10 to Figure 7.12 in lines 1 and 8
- Page 7-19 first line, change "where γ_f is the fracture stress" to "where σ_f is the fracture stress"

- Page 7-24 Figure 7.15a,b
The radius arrow and the letter "a" are displaced from the center of the circle in the figure on the left.
The z axis is also displaced from the center of the circle in the figure on the right.
They should appear as shown here.



- Page 7-25 third paragraph, line 7+8, change "... the flaw size for equation 7.2 is .." to "... the flaw size for equation 7.6 is .."
- Page 7-26 Figure 7.16 caption, last line, change: "... given in table 7.1" to "... given in **page 7-29.**"
- Page 7-28 Equation 7-12 is missing a term. It should be:

$$M = \left[1.13 - 0.09 \left(\frac{a}{c} \right) \right] + \left[-0.54 + \frac{0.89}{0.2 + \left(\frac{a}{c} \right)} \right] * \left(\frac{a}{h} \right)^2 + \left[0.5 - \frac{1}{0.65 + \left(\frac{a}{c} \right)} + 14 * \left(1 - \left(\frac{a}{c} \right) \right)^{24} \right] * \left(\frac{a}{h} \right)^4$$

(The missing term in the printed Guide is circled above.)
(Incidentally, this "M" term is a combination of the M₁, M₂, and M₃ terms from the original 1981 Newman and Raju paper.)

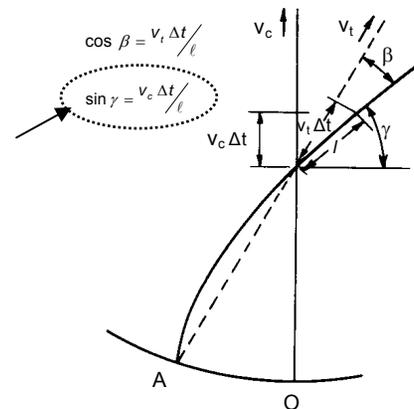
- Page 7-29 Equation 7.16 should be corrected from:

$$S = [1.1] * \sqrt{\left(\frac{a}{c} \right)} \quad \text{to:} \quad S = \left(1.1 + 0.35 \left(\frac{a}{h} \right)^2 \right) \sqrt{\left(\frac{a}{c} \right)}$$

(The shorter version is valid if the crack is very small and a/h ≈ 0. Note that errata sheets prior to this errata sheet #5 were also wrong and had a "*" symbol instead of the appropriate plus sign "+" on the right side.)

- Page 7-38 Change the section heading number from 7.7 to 7.8
- Page 7-41 4 lines up from the bottom, change the word: "overcomes" to "overtakes"
- Page 7-43 top line, change the word: "maximum" to "minimum"
- Page 7-45 Figure 7.27a top left, change

sin β to **sin γ** as shown here



- Page 7-48 last line, change from "... they will become shallower semi ellipses the deeper they go .." to "... they will become **more elongated** the deeper they go...."

- Page D-9 Figure D6.b
The wrong photo is shown.
It is a duplicate of Figure D6a.

The correct Figure D6.b is shown here. It is an optical photo with a close-up of the origin and mirror. It is about the same magnification as the SEM image shown in Fig. D-2c. The intent was to show matching optical and SEM images in b and c at the same magnifications for comparison.

