**Text # 1**

**Cobwebs to Crosshairs!**

By Carol Ann Moorhead

Cobwebs in your telescope?  Could be -- no matter how often you dust!

Imbedded in the lenses of many telescopes are two strands of spider silk.  Don't think you can see them?  Think again.  If you can see the crosshairs in your telescopes, you can see the "cobwebs".

Crosshairs haven't always been made of spider silk.  Early astronomers peered past platinum wires and through heavily ruled glass to view and chart the night skies.  But by the 1900s, telescope manufacturers were using spider silk for crosshairs.

It's easy to see why.  Spider silk is less expensive, easier to stretch into a straight line, and more resistant to extreme temperatures than platinum.  It is also much finer.  The average strand of spider silk is 1/1,970 of a centimeter wide--about 20 times finer than a human hair!

Now, spider-silk crosshairs are spinning out of existence.  According to Alan Hale, president of Celestron International (a telescope maker), spider silk is being phased out in favor of less costly but thicker copper wire.  At 1/276 of a centimeter wide, the new copper strands are only 3 times finer than a human hair.

Cobwebs in your next telescope?  Not likely--unless you leave the cap off the lens

**Close and Critical Reading**

**What does the text say? (READING COMPREHENSION)**

**Cobwebs to Crosshairs!** by Carol Ann Moorhead

**General Understanding (RI 2)**

* What is the subject of this text? The evolution of materials used as cross hairs in telescopes. The history early material used for cross hairs and the benefits of spider silk. Replacement materials are not as effective as spider silk but less expensive.

**Key details (RI 1)**

* First material used for cross hairs was platinum wires which was heavier than the replacement material: spider silk.
* Spider silk is being replace by a thicker but less expensive material: thicker copper wire.
* Spider silk is 20 times finer than human hair and copper is 3 times finer than human hair. (inference)

**How Does the Text Say It?** (**CRITICAL READING**)

**Text Development (RI 3)**

* The author develops the idea of materials used for cross hairs by giving the history and a comparison of the materials.

**Vocabulary (RI 4)**

* *Imbedded is to* *fix (an object) firmly and deeply in a surrounding mass*
* *Centimeter is* *a metric unit of length, equal to one hundredth of a meter. Peered is to look intently, searchingly, or with difficulty*
* **Structure (RI 5)**The time sequence and the comparison of materials supported understanding the changes in materials used for cross hairs in telescopes. **Author’s purpose and point of view (RI 6 and 8)**
* What is the author’s claim? *Spider silk (cobwebs) are being replaced as the material for cross hairs in telescopes*
* What evidence (facts) does the author present to support her claim? *Spider silk crosshairs are spinning out of existence.*
* Does the evidence support the claim? *According to Alan Hale, president of Celestron International (a telescope maker), spider silk is being phased out…*
* What reasoning does she offer? … *less costly but thicker copper wire.*
* What was the Rebuttal? Inferred (*spider silk is 20 times finer than human hair and copper is 3 times*)

**What does the text mean? (GENERATIVE THINKING)**

**Conceptual Connections**

* In the discussion about the material replacing spider silk. The generalization is *Cost controls the quality of Goods an*

**Inter Conceptual Application**: Think about something other than spider silk where quality of goods and services is compromised by cost.

**Enduring understanding or lesson learned.** Think about the enduring understanding or lesson learned related the compromise of cost for quality of goods and services

**Guided Highlighted Reading for Cobwebs to Crosshairs**

In paragraph # 2, find and highlight the author is calling “cobwebs.” (*crosshairs in your telescope*)

In paragraph # 3, find and highlight what was used for crosshairs before spider silk. (*platinum)*

In paragraph # 4, find and highlight why spider silk replaced platinum. (*less expensive, easier to stretch into a straight line, and more resistant to extreme temperatures than platinum.  It is also much finer.)*

In paragraph # 5, find and highlight what Alan Hale announced*. (spider silk is being phased out in favor of less costly but thicker copper wire*

In paragraphs # 4 and #5, find and highlight how we know that copper wire is thicker than spider silk*. (spider silk is 1/1,970 of a centimeter wide--about 20 times finer than a human hair!) (copper strands are only 3 times finer than a human hair.)*

# Made to Break: Technology and Obsolescence in America

**Text # 2ext # 2**

### by Giles Slade (Winner, 2007 Independent Publisher Book Awards, Environment/Ecology/Nature Category)

### A book review/interview hosted by Chris Gondek, Harvard University Press

If you've replaced a computer lately--or a cell phone, a camera, a television--chances are, the old one still worked. And chances are even greater that the latest model won't last as long as the one it replaced. Welcome to the world of planned obsolescence--a business model, a way of life, and a uniquely American invention that this eye-opening book explores from its beginnings to its perilous implications for the very near future.

**1**

**2**

**3**

*Made to Break* is a history of twentieth-century technology as seen through the prism of obsolescence. America invented everything that is now disposable, Giles Slade tells us, and he explains how disposability was in fact a necessary condition for America's rejection of tradition and our acceptance of change and impermanence. His book shows us the ideas behind obsolescence at work in such American milestones as the inventions of branding, packaging, and advertising; the contest for market dominance between GM and Ford; the struggle for a national communications network, the development of electronic technologies--and with it the avalanche of electronic consumer waste that will overwhelm America's landfills and poison its water within the coming decade.

History reserves a privileged place for those societies that built things to last--forever, if possible. What place will it hold for a society addicted to consumption--a whole culture made to break? This book gives us a detailed and harrowing picture of how, by choosing to support ever-shorter product lives we may well be shortening the future of our way of life as well.

From <http://www.hup.harvard.edu/catalog/SLAMAD.html>

**Guided Highlighted Reading for Made to Break**

**What does the text say? (READING COMPREHENSION)**

**General Understanding (RI 2)**

In Paragraph # 1, find and highlight the definition of planned obsolescence. (a business model, a way of life, and a uniquely American invention)

In Paragraph # 2, find and highlight what *Made to Break* explores. (a history of twentieth-century technology as seen through the prism of obsolescence)

**Key details (RI 1)**

In paragraph #2, find and highlight why disposability was a necessary condition*. (…*for America's rejection of tradition and our acceptance of change and impermanence*.)*

In paragraph # 2, find and highlight the ideas behind obsolescence at work. (American milestones as the inventions of branding, packaging, and advertising; the contest for market dominance between GM and Ford; the struggle for a national communications network, the development of electronic technologies…)

In paragraph # 2, find and highlight what the avalanche of electronic consumer waste will do. (will overwhelm America's landfills and poison its water within the coming decade.)

**How Does the Text Say It?** (**CRITICAL READING**)

**Text Development (RI 3)**

*In paragraph # 1, find and highlight how the author relates the claim in the book to the reader. (*If you've replaced a computer lately--or a cell phone, a camera, a television--chances are, the old one still worked.)

**Vocabulary (RI 4)**

In paragraph # 2, find and highlight the word that means something that is used to disperse light and break it up in a spectrum. (**prism**)

In paragraph # 1, find and highlight the word that means dangerous, unsafe and hazardous. (**Perilous**)

In paragraph # 2, find and highlight the word that means sudden large amount. (**avalanche)**

**Structure (RI 5)**

* + *It begins with personal examples of the author’s claim, a summary of the claim presented in the book and potential reason for the problem and potential future dangers?*

**Author’s Purpose and point of view (RI 6 and 8)**

In paragraph # 3 find and highlight the author’s claim. (…by (America) choosing to support ever-shorter product lives we may well be shortening the future of our way of life as well.)

In paragraph # 3, find and highlight the evidence the author presents to support the claim. ( …avalanche of electronic consumer waste that will overwhelm America's landfills and poison its water within the coming decade.) In paragraph # 1, find the evidence that supports the claim. (If you've replaced a computer lately--or a cell phone, a camera, a television--chances are, the old one still worked.)

In paragraph # 2, find and highlight the reasoning that is offered? (…the rejection of tradition and acceptance of change and impermanence…)

**What does the text mean? (GENERATIVE THINKING)**

**Conceptual Connections**

* The system has changed to promote disposable vs. durable goods
* This change accelerates the evolution of goods causing the clogs in the cycle of disposing of goods.

**Inter Conceptual Application**

* Think about another situation where accelerating evolution causes system problems.

**Enduring understanding or lesson learned**

Think about the enduring understanding or lesson learned related to the role accelerated evolution has change a system

Close and Critical Reading

# Made to Break: Technology and Obsolescence in America by Giles Slade

**What does the text say? (READING COMPREHENSION)**

**General Understanding (RI 2)**

* What is the subject of this text? Description of the book by Giles Slade, *Made to Break: Technology and Obsolescence in America*
* The book looks at America in the twenty-first century from the perspective of obsolescence exploring the reason and the dangers.

**Key details (RI 1)**

* *Disposability altered America’s idea of tradition and to accept change and impermanence.*
* *America invented everything that is now disposable.*
* *The waste will overwhelm America’s landfills.*
* *A new place in history for societies that “make to break?”*

**How Does the Text Say It?** (**CRITICAL READING**)

**Text Development (RI 3)**

**Vocabulary (RI 4)**

* *prism is used to disperse light and break it up in a spectrum.*
* *perilous means dangerous, unsafe and hazardous*
* *avalanche is a sudden large amount*

**Structure (RI 5)**

* + *It begins with personal examples of the author’s claim, a summary of the claim presented in the book and potential reason for the problem and potential future dangers?*

**Author’s Purpose and point of view (RI 6 and 8)**

* What is the author’s claim? *By America by choosing to support ever-shorter product lives we may well be shortening the future of our way of life.*
* What evidence (facts) does the author present to support her claim? *…avalanche of electronic consumer waste that will overwhelm America's landfills and poison its water within the coming decade.*
* Does the evidence support the claim? *If you've replaced a computer lately--or a cell phone, a camera, a television--chances are, the old one still worked.*
* What reasoning does she offer? *…the rejection of tradition and acceptance of change and impermanence…*
* What was the Rebuttal? *none*

**What does the text mean? (GENERATIVE THINKING)**

**Conceptual Connections**

* The system has changed to promote disposable vs. durable goods
* This change accelerates the evolution of goods causing the clogs in the cycle of disposing of goods.

**Inter Conceptual Application**

* Think about another situation where accelerating evolution causes system problems.

**Enduring understanding or lesson learned**

* Think about the enduring understanding or lesson learned related to the role accelerated evolution has change a system.